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STATE OF MARYLAND
DHMH-Laboratories Administration
Division of Environmental Chemistry
RADIATION LABORATORY
201 W. Preston Street, Baltimore, Maryland 21201
J. Mehser Joseph, Ph.D., Director

LABORATORY ANALYSIS REQUEST

Date: 11/30/05 Collector: Bob Nelson
Phone: 410 537-4421 Fax: 410 537-3198 Number of samples: 20
Sample Type: Wipes Collection date & time 11/29/05 1200
Sample Source: NPI
Comments: Co-60

List of Radionuclides Requested:

Radionuclide	Field ID	Lab Number	Result
Co-60		1179-1198	

Date Received: 11/30/05 Date Reported: 12/9/05
Analyst: C. Watty Boyer Lab Supervisor: S. Wise
B. Romero

MARYLAND STATE DEPARTMENT OF HEALTH AND MENTAL HYGIENE
RADIATION LABORATORY REPORT
(410) 767-5537

SAMPLE SOURCE: NPI COLLECTOR: B. Nelson SAMPLE TYPE: Wipe
COLLECTION DATE: 11/29/05 RECEIPT DATE: 11/30/05 REPORT DATE: 12/09/05 ANALYSES BY: B. Romero

*B. Romero*Activity (x 10E-06 μ Ci/wipe)

<u>Lab. No.</u>	<u>Wipe #</u>	<u>Co-60</u>
1179	1	< 6.92
1180	2	< 8.26
1181	3	$1.90 \times 10 \pm 3.19$
1182	4	< 8.90
1183	5	6.88 ± 2.12
1184	6	< 9.80
1185	7	< 1.28×10
1186	8	$1.84 \times 10 \pm 2.42$
1187	9	$2.02 \times 10 \pm 3.26$
1188	10	< 5.93
1189	11	$1.460 \times 10^3 \pm 4.73 \times 10$
1190	12	$3.36 \times 10 \pm 3.24$
1191	13	$2.065 \times 10^2 \pm 9.22$
1192	14	$3.10 \times 10 \pm 4.07$
1193	15	$3.135 \times 10 \pm 4.13$
1194	16	$8.30 \times 10 \pm 1.13 \times 10$
1195	17	$4.054 \times 10^3 \pm 1.46 \times 10^2$
1196	18	$9.380 \times 10^2 \pm 6.73 \times 10$
1197	19	$2.889 \times 10^2 \pm 2.12 \times 10$
1198	20	$3.606 \times 10 \pm 4.38$

STATE OF MARYLAND
DHMH-Laboratories Administration
Division of Environmental Chemistry
RADIATION LABORATORY
201 W. Preston Street, Baltimore, Maryland 21201
J. Mehsen Joseph, Ph.D., Director

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LABORATORY ANALYSIS REQUEST

Date: 11/30/05 Collector: Bob Nelson
Phone: 410 537-4421 Fax: 410 537-3198 Number of samples: 2
Sample Type: Water Collection date & time 11/29/05 100
Sample Source: NOI
Comments: Co-60, PH, & Conductivity

List of Radionuclides Requested:

Radionuclide	Field ID	Lab Number	Result
Co-60		1177-1178	

Date Received: 11/30/05 Date Reported: 12/9/05
Analyst: B. Rowley Lab Supervisor: S. Wise

MARYLAND STATE DEPARTMENT OF HEALTH AND MENTAL HYGIENE
RADIATION LABORATORY REPORT
(410) 767-5537

SAMPLE SOURCE: NPI COLLECTOR: B. Nelson SAMPLE TYPE: Water
COLLECTION DATE: 11/29/05 RECEIPT DATE: 11/30/05 REPORT DATE: 12/09/05 ANALYSES BY: B. Romero
S. Wise

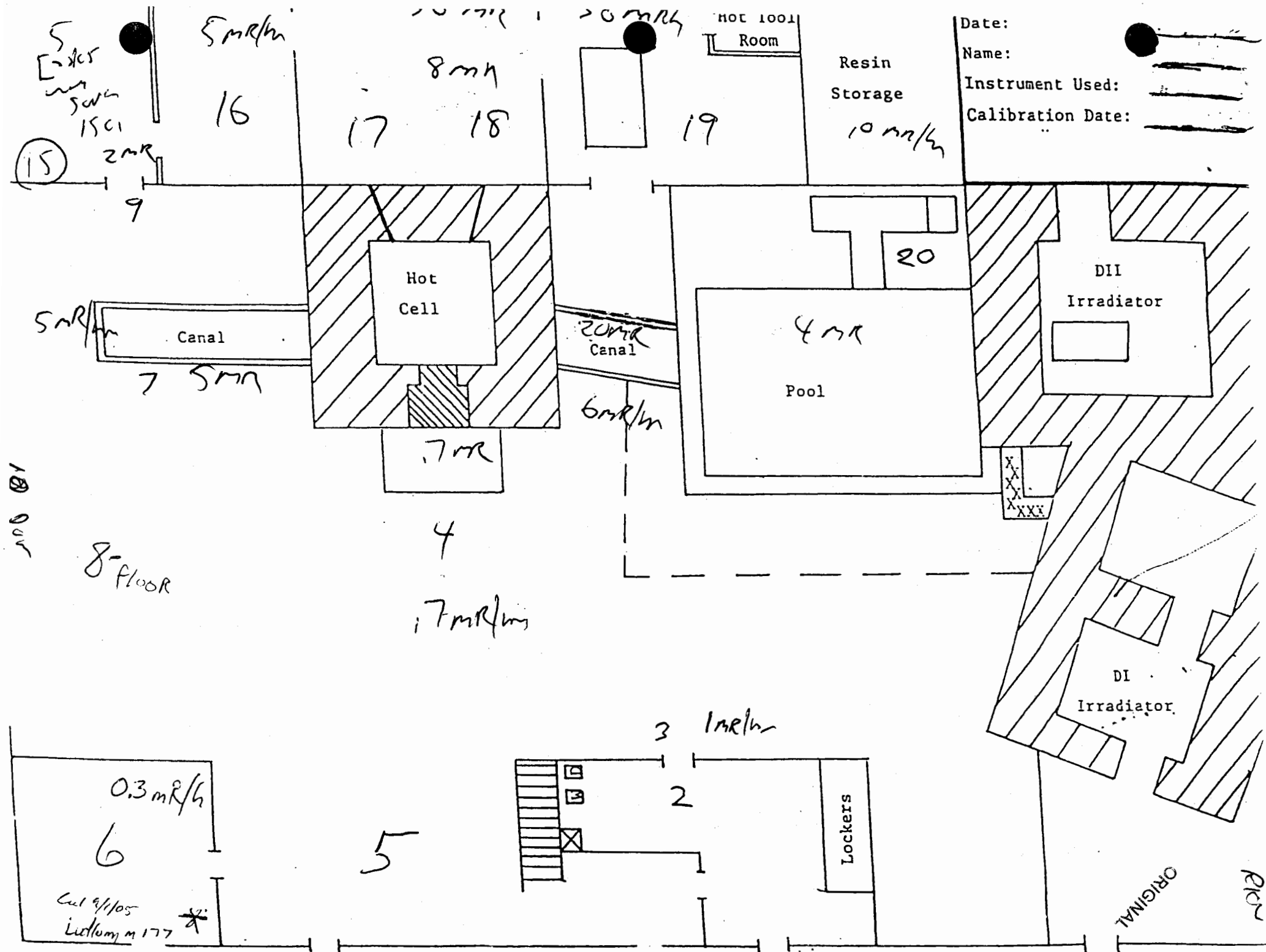
Activity (x 10E-06 μ Ci/L)

<u>Lab. No.</u>	<u>Co-60</u>	<u>pH</u>	<u>Conductivity</u>
1177	$6.479 \times 10^3 \pm 3.35 \times 10^2$	5	NA
1178	$7.642 \times 10^3 \pm 3.39 \times 10^2$	5	NA

NOTE: NA is no analysis

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STATE OF MARYLAND
DHMH-Laboratories Administration
Division of Environmental Chemistry
RADIATION LABORATORY
201 W. Preston Street, Baltimore, Maryland 21201
J. Mehser Joseph, Ph.D., Director

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LABORATORY ANALYSIS REQUEST

Date: 12/2/05 Collector: Bob Nelson

Phone: 410 537-4421 Fax: 410 537-3198 Number of samples: 7

Sample Type: Soil + Leaves Collection date & time 12/1/05 1:00

Sample Source: NPI

Comments: Please dry soil

List of Radionuclides Requested:

Radionuclide	Field ID	Lab Number	Result
<u>Co-60</u>		<u>1238-1244</u>	

Date Received: 12/2/05 Date Reported: 12/2/05

Analyst: Ramexa/Wise Lab Supervisor: S. Wise

MARYLAND STATE DEPARTMENT OF HEALTH AND MENTAL HYGIENE
RADIATION LABORATORY REPORT
(410) 767-5537

SAMPLE SOURCE: Neutron Products, Inc.COLLECTOR: B. NelsonSAMPLE TYPE: SoilCOLLECTION DATE: 12/01/05RECEIPT DATE: 12/02/05REPORT DATE: 12/21/05ANALYSES BY: Romero/Wise
J. Wise

<u>Lab. No.</u>	<u>Sample</u>	<u>Co-60 (pCi/g)</u>
1238	1	$7.06 \times 10 \pm 2.66$
1239	2	$8.72 \times 10 \pm 3.348$
1240	3	$3.74 \times 10 \pm 1.29$
1241	4	$3.30 \times 10 \pm 1.58$
1242	5	$2.29 \times 10 \pm 1.18$
1243	6	9.94 ± 0.47



MARYLAND DEPARTMENT OF THE ENVIRONMENT
1800 Washington Boulevard • Baltimore MD 21230
410-537-3000 • 1-800-633-6101

Robert L. Ehrlich, Jr.
Governor

Michael S. Steele
Lt. Governor

FEB 23 2006

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Kendl P. Philbrick
Secretary

Jonas A. Jacobson
Deputy Secretary

CERTIFIED MAIL: NOTICE OF VIOLATION

Jackson A. Ransohoff, President
Neutron Products, Inc.
22301 Mt. Ephraim Road
P.O. Box 68
Dickerson MD 20842

RE: Radioactive Material License #MD-31-025-01

Dear Mr. Ransohoff:

This letter refers to the radioactive materials inspection conducted by Ms. Fatima Adeyemo, Messrs. Danny Adams, Bob Nelson and Alan Jacobson of the Maryland Department of the Environment's (MDE) Radiological Health Program (RHP) on November 29 and December 1, 2005. The inspection examined radiation safety, compliance with conditions of your license, adherence to procedures and proper maintenance of records, interviews with personnel, general observations, and independent measurements.

During the inspection, certain activities were found to be in violation of the Department's requirements. These findings were discussed with Ms. Kathy Bupp, Messrs. Jeffrey Williams, William Ransohoff, and yourself during the licensee management exit interview following the inspection. The violations found are listed in the enclosed "Description of Violations." In addition to the violations found, the RHP has identified the following concerns:

1. Inspection findings revealed that NPI may not have sufficient trained personnel, financial resources and management commitment to decommission the Limited Access Area (LAA) in a timely, safe and predictable manner as required.
2. The inspection team identified numerous repeat violations of the November 3, 2000 Montgomery County Circuit Court Order.
3. NPI continues to release radioactive materials into the environment in an uncontrolled manner.
4. Dickerson residents living near the plant are exposed to unnecessary levels of radiation caused by radioactive waste that is illegally stored on site. NPI has missed many waste shipment deadlines. NPI still does not have a written plan or

commitment from management to ship approximately 2000 curies of radioactive waste and has missed the August 2004 deadline. In fact, according to waste disposal records maintained by the licensee, NPI has shipped less than 1 Curie of radioactive waste in the past 10 years.

5. NPI has still not submitted an adequate decommissioning plan or waste disposal plan prepared in accordance with licensed waste shipment criteria.
6. NPI management and their Health Physics Consultant have not been effective in correcting ongoing violations and concerns. Most of these violations and concerns are not being addressed in either the monthly radiation protection audits or the annual review of the radiation protection program-content and implementation. The monthly audits and annual reviews failed to address the numerous illegal activities at the Dickerson facility and appear to provide only a minimal improvement to the radiation safety program at NPI.
7. NPI continues to operate under a court order-permanent injunction without an approved waste disposal plan and an approved decommissioning plan. Furthermore, NPI still has not implemented corrective actions necessary to comply with ongoing violations regarding waste disposal, soil concentration limits, radiation levels, releases of radioactive material, financial assurance for decommissioning and license termination.

As a result of these findings, you are required to take immediate action to correct the violations and to respond to this letter and the enclosed "Description of Violations" within twenty (20) calendar days of your receipt of this notice. Written statements should be provided for the concerns and each of the violations and concerns indicating:

- a. Corrective steps, which have been or will be taken by you to remedy the present violations and concerns, and the results achieved or anticipated;
- b. Corrective steps which will be taken to avoid further violations and concerns, who will undertake these steps, and who will supervise them; and
- c. The date when full compliance will be achieved.

Failure to provide these statements in the required time frame may result in the Department taking escalated enforcement action under Maryland Radiation Regulations to:

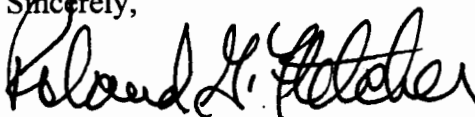
- (a) modify, revoke or suspend your license,
- (b) issue a Departmental Order under the Annotated Code of Maryland, Environment Article, Sections 1-301 and 8-101 through 8-601, and

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- (c) seek an administrative penalty of up to \$1,000 per violation, per day [Section 8-150(b)], or a civil penalty in Circuit Court in an amount not exceeding \$10,000 per violation, per day [Section 8-509(b)].

Please be reminded that Departmental compliance letters and licensee responses shall be posted pursuant to the requirements of the Maryland regulations, Section J.11(d) titled, "Posting of Notices to Workers." If you have any questions concerning this letter, please call Messrs. Alan Jacobson, or Raymond E. Manley at (410) 537-3301. You may also reach our office toll-free (in Maryland only) by dialing 1-800-633-6101 and requesting extension 3301. Also, you may contact this office via facsimile at (410) 537-3198.

Sincerely,



Roland G. Fletcher, Manager III
Radiological Health Program

Rm RKP
RGF/RKN/cc

Enclosure: Description of Violations

DESCRIPTION OF VIOLATIONS

Neutron Products, Inc.
22301 Mt. Ephraim Road
P.O. Box 68
Dickerson MD 20842

RE: Radioactive Material License #MD-31-025-01

Certain activities conducted under your license were found to be in violation of the Code of Maryland Regulations 26.12.01.01 titled, "Regulations for Control of Ionizing Radiation." These violations are presented below:

1. Section C.31 titled, "Specific Terms and Conditions of License" and License Condition 22.B(2), require, in part, that all soils, wherever found, contaminated by NPI licensed activities and exhibiting levels of cobalt-60 contamination exceeding 8 picocuries per gram above background must be removed by NPI and properly stored/disposed of as radioactive waste. The Montgomery County Circuit Court Order-Civil Case 199036 (Montgomery County Circuit Court Order) dated November 3, 2000, requires NPI to comply with all of the current requirements of the applicable statutes, regulations and the provisions of the license. The Stipulation and Settlement of Civil Case No. 76639 in the Circuit Court of Montgomery County dated January 3, 1994, further required NPI to demonstrate compliance with these requirements by June 15, 1994.

Contrary to the above, NPI failed to remove cobalt-60 contaminated soil exceeding the above-specified limit. NPI failed to remove the contaminated soils from the areas exceeding the license limit. NPI has been in continuous violation of this requirement since May 23, 1989. For example, NPI still has not removed the soil contaminated with cobalt-60 from the adjacent railroad property to establish compliance with the 8.0 picocurie per gram concentration limit. Furthermore, monthly soil samples collected from the dry pond area and analyzed by NPI personnel during the calendar year of 2005 also exceeded this regulatory limit, however these soils were not removed. On December 1, 2005, MDE Inspectors collected 6 soil samples from the dry pond and adjacent areas. Results of laboratory analysis indicate soil concentration the samples that ranges from 9-87 picocuries per gram. NPI has missed this June 15, 1994 deadline and continues to refuse to remediate this property.

2. Section D.101(a) titled, "Radiation Protection Programs" states that in addition to complying with all other provisions of these regulations, a licensee shall use all means to maintain radiation exposures and releases of radioactive material as low as reasonably achievable (ALARA). The Montgomery County Circuit Court Order requires NPI to comply with all of the current requirements of the applicable statutes, regulations and the provisions of the license.

- A. Contrary to the above, NPI failed to use all means necessary to maintain releases of radioactive material as low as reasonably achievable. Specifically, NPI has failed to use means such as the adequate containment of radioactive materials, proper waste storage practices and regular shipments of radioactive waste, to a licensed repository. On December 1, 2005, MDE Inspectors collected 6 soil samples from the dry pond and adjacent areas that exceeded regulatory limits. As a result, NPI is not maintaining control over their radioactive material and it is continuing to be released. In spite of curtailed source-manufacturing activities, NPI continues to release cobalt-60 into the environment in an uncontrolled manner. Contaminated areas of the LAA lack adequate containment and release pathways are not continuously monitored. NPI has refused to adequately clean these contaminated areas, remove contaminated soils, ship radioactive waste as required and install containment necessary to prevent uncontrolled releases of radioactive material.
- B. Contrary to the above, NPI failed to use all means necessary to maintain radiation exposures to levels as low as reasonably achievable. Specifically, NPI failed to use means such as shielding of radioactive waste in storage and shipment of radioactive waste in accordance with license conditions. As a result, NPI employees and residents living near the plant are exposed to unnecessary levels of radiation emitted from the waste storage areas.
3. Section C.31(c) titled, "Specific Terms and Conditions of Licenses" and License Condition 21.B require that, within 90 days of the issuance of the license, NPI must submit to the Department for approval, a comprehensive plan for disposal of all low level radioactive wastes in accordance with those specifications defined in this condition. The Montgomery County Circuit Court Order requires NPI to comply with all of the current requirements of the applicable statutes, regulations and the provisions of the license.

Contrary to the above, NPI's low level radioactive waste plan was submitted to MDE on December 10, 1999; however, upon review it was found to be inadequate and as of this date a comprehensive plan acceptable to the Department has not been submitted. Deficiencies in the plan were discussed in a Departmental letter dated March 20, 2000, but NPI has not adequately responded to it. Specifically, the plan submitted by NPI did not include a waste shipment schedule that met the deadline described in License Condition 21.B.

4. Section C.29 (c)(2) titled, "Financial Assurance and Recordkeeping for Decommissioning" requires the licensee to submit a Decommissioning funding plan and financial assurance in accordance with dates and criteria set forth in this section. The Montgomery County Circuit Court Order requires NPI to comply with all of the current requirements of the applicable statutes, regulations and the provisions of the license.

Contrary to the above, NPI failed to provide an adequate decommissioning funding plan and financial assurance in accordance with the criteria set forth in this regulation. On October 20, 2000, the RHP received NPI's Decommissioning Plan dated October 27, 2000, which included a planned schedule for radioactive waste shipments. The RHP has reviewed this plan and determined that it is inadequate because it did not demonstrate compliance with the

current radioactive material license waste disposal criteria. Table 2.1 of this plan described a 12-year shipment schedule for only a small fraction of the total activity of current radioactive waste inventory. The plan did not describe the shipment schedule and protocol for the disposal of the contaminated soil in storage. All radioactive waste that was generated prior to August 1999 was required to be shipped for disposal by August 2004. NPI has been in continuous violation of this requirement since April 13, 1999 as upheld by the Maryland Court of Special Appeals Case No. 2338 filed September 19, 2001.

5. Section C.29(g)(2) titled "Financial Assurance and Recordkeeping for Decommissioning" states that that no person shall receive, possess, use, transfer, own, or acquire radioactive material of a type described in paragraphs (a) and (b) of C.29 for more than 180 days following the dates prescribed in the section for submittal of a decommissioning funding plan or certification, if the decommissioning funding plan or certification has not been approved by the Agency. The Montgomery County Circuit Court Order requires NPI to comply with all of the current requirements of the applicable statutes, regulations and the provisions of the license

Contrary to the above, NPI has still not met the financial assurance requirements. Furthermore, NPI's decommissioning funding plan has not been approved by the Agency. Despite NPI's failure to provide an adequate decommissioning funding plan, the company has continued to possess radioactive material of a type described in C.29(a) after the April 13, 1999 deadline. NPI has been in continuous violation of this requirement since April 13, 1999. NPI has refused to initiate the steps necessary to decommission the facility in a timely, safe and predictable manner as required.

6. Section C.31(c) titled, "Specific Terms and Conditions of Licenses" and License Condition 21(B) prohibits NPI from storing radioactive waste in areas other than the main pool/canals for a period exceeding 2 years. The Montgomery County Circuit Court Order requires NPI to comply with all of the current requirements of the applicable statutes, regulations and the provisions of the license.

- A. Contrary to the above, NPI missed the August 2004 deadline to ship approximately 1900 curies of radioactive waste store in the main pool and North Canal II.
- B. Contrary to the above, NPI failed to ship for disposal the following containers of radioactive waste in accordance with waste shipment requirements.
 - i. Resin from the main pool, 3 cubic ft, containing 1 curie of cobalt-60, generated 8/10/2001
 - ii. Approximately 600 cubic feet of soil contaminated with cobalt-60 generated in November 2000
 - iii. Box # 88, 16 cubic ft, 134 lbs, 1.5 mR/hr at contact, generated 4/20/2001
 - iv. Box # 90, 16 cubic ft, 67 lbs, 2.0 mR/hr at contact, generated 4/28/2001
 - v. Box # 91, 16 cubic ft, 114 lbs, 400 mR/hr at contact, generated 5/9/2001
 - vi. Box# 94, 16 cubic ft, 78 lbs, 500 mR/hr at contact, generated 5/8/2001
 - vii. Box # 95, 16 cubic ft, 55 lbs, 400 mR/hr at contact, generated 5/10/2001

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- viii. Box # 96, 16 cubic ft, 53 lbs, 500 mR/hr at contact, generated 5/10/2001
- ix. Box# 100, 16 cubic ft, 60 lbs, 450 mR/hr at contact, generated 5/11/2001
- x. Box # SWR05, 16 cubic ft, 65 lbs, 700 mR/hr at contact, generated 6/6/2001
- xi. Box # 062298-2, 16 cubic ft, 78 lbs, 20 mR/hr at contact, generated 6/6/2001
- xii. Box# FD-001, 8 cubic ft, 88 lbs, 50 mR/hr at contact, generated 7/16/2001
- xiii. Box# FD-002, 8 cubic ft, 85 lbs, 450 mR/hr at contact, generated 7/16/2001
- xiv. Box# FD-003, 7 cubic ft, 84 lbs, 140 mR/hr at contact, generated 9/7/2001
- xv. Box# FD-004, 8 cubic ft, 65 lbs, 13 mR/hr at contact, generated 9/7/2001
- xvi. Box# FD-005, 8 cubic ft, 72 lbs, 100 mR/hr at contact, generated 10/10/2001
- xvii. Box# FD-006, 8 cubic ft, 53 lbs, 400 mR/hr at contact, generated 11/30/2001
- xviii. Box # FD-007, 8 cubic ft, 70 lbs, 7 mR/hr at contact, generated 11/30/2001
- xix. Box# FD-008, 8 cubic ft, 60 lbs, 5 mR/hr at contact, generated 11/30/2001

7. Section C.32 titled, "Expiration and Termination of Licenses and Decommissioning of Sites and Separate Buildings or Outdoor Areas" requires, in part, that each licensee shall either begin decommissioning its site, buildings and outdoor areas in accordance with Agency requirements or submit a decommissioning plan within 12 months when the licensee's right to operate has been terminated either by court action or by action of law or regulation. Section C.32(g)(1) requires a licensee to complete decommissioning as soon as practicable but no later than 24 months following the initiation of decommissioning. Section C.32(g)(2) requires the licensee to request license termination as soon as practicable but no later than 24 months following the initiation of decommissioning. The Montgomery County Circuit Court Order requires NPI to comply with all of the current requirements of the applicable statutes, regulations and the provisions of the license.

In accordance with the above, NPI's right to operate in accordance with the 01 license was terminated by the Maryland Court of Special Appeals in December 2001. NPI failed to submit an adequate decommissioning plan in accordance with paragraphs (f) and (g) of these regulations. Furthermore, NPI has not yet begun to decommission the site, buildings and outdoor areas. Finally, NPI has still not submitted an adequate decommissioning plan in accordance with the criteria specified in paragraphs (f) and (g).

8. COMAR 26.12.03.02 paragraph E titled, "Annual Fees for Licenses to Possess or Use Radioactive Materials" requires a person with a license to possess or use radioactive material to pay to the Department an annual licensing fee in accordance with a fee schedule set forth in Regulation .03C of this chapter. The fee shall be paid on or before the first day of the month in which the anniversary of the license date occurs. The Montgomery County Circuit Court Order requires NPI to comply with all of the current requirements of the applicable statutes, regulations and the provisions of the license.

Contrary to the above, NPI failed to pay their annual licensing fee. Although the Maryland Court of Special Appeal terminated NPI's ability to operate under this radioactive materials license, the payment of the annual fee is required until the facility is decommissioned and the license is terminated in accordance with the criteria specified in Section C.32 titled, "Expiration and Termination of licenses and Decommissioning of Sites and Separate Buildings or Outdoor Areas."



MARYLAND DEPARTMENT OF THE ENVIRONMENT

1800 Washington Boulevard • Baltimore MD 21230

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Robert L. Ehrlich, Jr.
Governor

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Lt. Governor

JUL 8 2004

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Kendall P. Philbrick
Secretary

Jonas A. Jacobson
Deputy Secretary

LETTER OF ACKNOWLEDGEMENT

Jackson A. Ransohoff, President ✓
Neutron Products, Inc. ✓
22301 Mt. Ephraim Road
P.O. Box 68
Dickerson, MD 20842

RE: **RADIOACTIVE MATERIALS LICENSE NUMBER: MD- 31-025-01** ✓

Dear Mr. Ransohoff:

This letter serves to acknowledge receipt of your June 7, 2004 response to the Maryland Department of the Environment's (MDE) Radiological Health Program (RHP) Notice of Violation dated May 17, 2004. Upon review, the Department finds your response to be unacceptable.

Specifically, your response failed to include written statements for each violation indicating:

- a. Corrective steps, which have been or will be taken by you to remedy the violations and the results, achieved or anticipated; and
- b. Corrective steps which will be taken to avoid further violations, who will undertake these steps, and who will supervise them.
- c. The date when full compliance will be achieved

Your corrective actions will be examined during a future inspection of your licensed program. Should you have questions concerning this letter, please contact Messrs. Ray Manley or Alan Jacobson at (410) 537-3301. You may also reach our office by dialing toll-free (in Maryland only) at 1-800-633-6101 and requesting extension 3301. Also, you may contact this office via facsimile (410) 537-3198.

Sincerely

Raymond E. Manley, Chief
Radioactive Materials Licensing and
Compliance Division

REM/ADI/cc

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**Neutron Products, Inc.
Dickerson, Maryland
Radiation Protection Program Review
Maryland License MD-31-025-01
2005**

Prepared by
J. Williams, RSO - Facility
C. Bupp, Dosimetry Records Tech.

June 30, 2006

Introduction

Maryland's revised *Regulations for the Control of Ionizing Radiation* (1994), COMAR 26.12.01.01, Section D.101.c, requires licensees to "review the radiation protection program content and implementation" at intervals not to exceed 12 months. This review covers the entire period of 2005.

Overview of Radiation Protection in 2005

As with the previous two years, the entirety of 2005 was spent operating under court injunction which severely curtailed activities conducted under the 01 license. No cobalt-60 sources were manufactured, shipped, received, or transferred at Dickerson at any time during 2005. Health physics and radiation protection activities continued.

In November, Dick Demory retired. Thus far, the impact of his leaving has been minimal, because of the lack of meaningful work in the LAA. For much of 2005 Dick had been detailed to Ranson. The regular LAA staff now numbers two, although members are frequently detailed to other operations. Despite the reduced staffing, radiation protection activities have not suffered to any extent. Routine health physics, maintenance, and housekeeping activities have continued at or above their historical levels.

Occupational Exposure

A total of 41 employees were monitored by thermoluminescent personal dosimetry during part or all of 2005. The collective occupational WB exposure for these employees was 4.153 person•rem DDE. Full-time LAA staff (3 employees) accounted for 0.919 person•rem DDE, 22% of the total collective exposure. Employees with short-term assignments in the LAA accounted for 0.882 person•rem DDE or 21.2% of the total exposure, almost all of which was associated with the replacement of the hot waste room roof. Teletherapy (3 employees) accounted for 2.321 person•rem DDE or 55.9% of the total. Irradiator operators and other employees received 0.031 person•rem and 0.0 person•rem DDE, respectively.

The collective exposure for 2005 was 38% higher than that for 2004. The majority of the increase was due to exposure during the roof replacement, although a significant fraction may be attributed to exposure of dosimeters during airline flights.

Of the 41 monitored employees, 32 or 78% received no measurable¹ occupational exposure in 2005. Four or 9.7% received between 0 and 100 mrem; none between 100 and 300 mrem, and 3 between 300 and 1000 mrem. One employee's dosimeters measured more than 1 rem.

The highest individual annual exposure in 2005 was 1.979 mrem, compared to 1.587 rem for the previous year. For 2005 the highest exposure resulted not from LAA/hot cell operations, but from teletherapy. However, as noted in previous reviews, we believe that a significant fraction of the measured exposure is due to x-ray exposure in checked baggage. The TLD measurements are significantly higher than those derived from SRD readings and higher than expected from historical precedent. The individual's teletherapy duties required frequent air travel at a time when X-ray

1

The minimum detectable exposure for a single TLD is said to be 10 mrem, exposures less than the minimum detectable are reported as 0.

**Radiation Protection Program
Annual Review
2005
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surveillance of luggage, both checked and carry-on, has greatly increased. A spare badge used as a control during air travel had a dose of 1716 mrem. A simple correction, which may not be valid, would indicate actual occupation exposure to the employee as 263 mrem and collective exposure for the year of 2437 person-rem. Use of a single dosimeter as a control is probably not very accurate because the dose distribution in x-rayed luggage may not be very uniform. Teletherapy installers have been asked to carry on their dosimeters in the future, requesting that TSA personnel not expose them to radiation.

Major Operations of Radiological Significance

There were no operations involving collective exposure in excess of 1 person-rem or individual doses greater than 500 mrem conducted in 2005. Replacement of the roof over the hot waste rooms involved a collective exposure of 0.869 person-rem.

Exposure to Members of the Public

Exposure to members of the public residing close to the Dickerson facility were determined on the basis of dosimetry, surveys, and information provided by individual neighbors regarding their living habits. Of the closest residences, the Fisk house received the highest exposure, as is usually the case when it is occupied year round.

TLDs were placed inside and outside the Fisk house and collected quarterly. Additional dosimeters were placed inside and outside at the Lamson residence, and at Neutron's rental property.

The occupants of the Fisk property are assumed to be away from the home an average of 50 hours per week and to spend an average of two hours per day outside at the higher dose rate. Background corrected dosimetry results for 2005 were 41 mrem (inside) and 46 mrem (outside). The estimated exposure for each member of the household was 32.6 mrem making them the highest exposed cohort for last year.

Background corrected dosimetry results for the rental house were 38 mrem (inside) and 53 mrem (outside). Year long results for the Lamson house were 14 mrem (inside) and 22 mrem (outside), although the house was unoccupied from September on.

Internal exposure to the most highly exposed cohort from airborne release from the hot cell exhaust is less than 1 mrem CEDE as determined using EPA's COMPLY V1.5d program.

Contamination and Housekeeping

Typical removable contamination levels on floors and elevated surfaces continue to be much lower than historically encountered as might be expected. Almost all smears collected outside of Contamination Control Zones were below the minimum detectable concentration for a 1 minute

count (113 dpm/100 cm²). Only in the room behind the cell do some samples still exceed 1000 dpm/100 cm²; however they are an order of magnitude less than were previously typical for the same area in 2001.

Monthly floor surveys of the plant outside the LAA were negative for removable contamination during the 12-month period. This remains evidential that the transition zones and LAA entry/exit procedures are effective in controlling the migration of contamination from the LAA.

Perimeter Monitoring

Twenty-five perimeter locations surrounding Neutron's Dickerson site were monitored using TLDs throughout 2005. One additional location was monitored at Lytle's warehouse and was used as a background reference. The control badge data was analyzed but no background correction was made for the perimeter dosimetry. Natural background was measured at 88 mrem.

No perimeter location exceeded 500 mrem gross dose in 2005. The highest dose points on the perimeter were badge 2013, located on the south fence near the bulk chemical unloading off-loading station, with a gross dose of 218 mrem (net dose of 130 mrem) for the year, and badge 2019, located on the south fence at the dry pond, with a gross dose of 240 mrem (net dose of 152 mrem) for the year. These points have consistently had the highest readings of any of the perimeter locations monitored and are essentially unchanged from the previous year. The 2019 position is located directly above contaminated soil which is downstream from the dry pond discharge. The 2013 location has a direct line of sight to the waste rooms and therefore has a significant dose contribution from direct as opposed to scattered (skyshine) radiation.

Internal Radiation Exposures for LAA Operations

The estimated CEDE for LAA entrants was derived using available air sampling data and entry records and the methodology adopted for the 1996 review; however, total occupancy in the LAA was assumed to be 1200 hours. This assumption was made to simplify our analysis, and is consistent current LAA staffing patterns. The conservative nature of this methodology has been discussed previously. As in previous years, internal exposure from airborne activity did not exceed the regulatory requirements for summation. The average airborne activity for samples collected in the LAA during 2005 was 2.12×10^{-11} $\mu\text{Ci}/\text{cm}^3$, which is approximately 0.2% of the Derived Air Concentration for Cobalt-60, Class Y. Assuming all activity as Class Y, the CEDE for inhalation would be 4.3 mrem, or 0.8% of the action level for summation. Because of the conservative nature of the assumptions used to derive this estimate, it is unlikely that the routine internal exposure actually approaches 4 mrem.

The annual whole body count data corroborated the air sampling findings. None of the nine persons evaluated had body burdens of Co-60 above the 2 nCi minimum detectable activity. The ALI (inhalation) for Class-Y cobalt-60 is 30,000 nCi.

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The mini-HECM portal monitor is capable of detecting internal Co-60 contamination of about 100 nm or more. No ingestions or inhalations were detected during 2005.

Off-Site Surveys

In 2005, 12 offsite surveys were conducted covering approximately 15½ acres. No activity was detected.

Employee Home and Vehicle Surveys

No contamination was detected in vehicle or home surveys during 2005.

Releases of Radioactivity

During 2005, the average concentration of radioactivity from the hot cell exhaust system as determined from mini-sampler data was $4.03 \times 10^{-13} \mu\text{Ci}/\text{cm}^3$. This is only 0.8% of the Part D, Appendix B, Table II limit of $5 \times 10^{-11} \mu\text{Ci}/\text{cm}^3$ for Class Y cobalt-60. Total release of activity from the hot cell exhaust during 2005 is estimated to be 5.8 μCi , assuming all activity to be cobalt-60. In the past, about 10% of the measured activity attributed to cobalt-60 was, in fact, naturally occurring radon daughters, mostly bismuth-214.

During 2005, a total of 115,000 gallons of sewage was shipped to the WSSC, the average release of activity to the WSSC was $2.23 \times 10^{-6} \mu\text{Ci}/\text{ml}$. No monthly average exceeded $3.0 \times 10^{-5} \mu\text{Ci}/\text{ml}$. The release to the WSSC for 2005 was 0.990 mCi or less than 0.1 % of the 1 Ci annual limit for release.

Despite the marked reduction in contamination levels within the LAA, we are still seeing some transient release of cobalt-60 to the LAA courtyard. This activity is ionically bound to humic matter and swept by storm water to the courtyard drains. While the majority of the activity is removed by the stone trap, approximately 25% escapes downstream, ultimately to the dry pond and its environs.

Radioactive Waste

No radioactive waste shipments were made in 2005. However, in November we began discussions with Duratek (now Energy Solutions) about processing waste at their Bear Creek Facility in Oak Ridge. We previously made two shipments to this incineration/super-compaction facility when it was owned by SEG. After the second shipment, SEG's management changed as did their waste acceptance criteria and it became impractical to continue shipments. With the acquisition by Duratek and the further consolidation and reduction of alternatives in the radwaste industry, we believed it was timely to take a second look.

It appears that Duratek's services can be utilized to process a significant volume of waste in dry storage, although not much activity. For incineration, a contact dose rate limit of 200 mR/hr is imposed. For super-compaction, higher contact dose rates (up to 1 R/hr) are accepted although at a premium.) Activity restrictions notwithstanding, Duratek's "milk run" service could provide a cost effective means for markedly reducing combustible DAW, a primary management goal. Also, since this waste is lightly shielded, the impact on ambient dose rates and skyshine will be much greater than the fractional reduction in total waste activity. (The highest activity waste is heavily shielded and does not significantly influence radiation levels.)

Optimum use of Duratek's processing services will require sorting and repackaging of existing waste inventories. Plans are to send about 20 boxes at a time during periodic milk runs.²

Evaluation of Program Components

Neutron's Radiation protection program was previously documented as a number of policies, programs, and procedures. Each of these addressed different aspects of radiation protection and taken as a whole where adequate documentation. However, it was desirable to have a master document which encompassed the totality of radiation protection at Neutron. A comprehensive *Radiation Protection Program*, which ties the various existing programs and procedures which embody our protection program into a cohesive whole was approved and adopted in December. This program is analogous to a Quality Assurance Program. It specifies 21 elements which are reviewed here.

Section	Title	Status
4	Review	Requires an annual program review pursuant to COMAR 26.12.01.01, D.101.c and specifies minimum requirements for inclusion. This review was completed within the 12-month period.
5	ALARA	Requires a documented ALARA program conforming to NRC Reguides 8.10 and 8.37 and NUREG 1530. We have documented and implemented a compliant ALARA program.
6	Management Oversight	Specifies a Radiation Safety Committee and its duties with minimum requirements for meetings and requires a documented program for internal reviews. The RSC and Internal Review programs are adequately implemented.

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Section	Title	Status
7	Occupational Exposure...	Requires a documented program for controlling and monitoring occupational exposure and minimum provisions for such. Our program, now at Revision 7, and its implementation are compliant.
8	Public Exposure...	Requires a documented program for controlling and monitoring public exposure and minimum provisions for such. Our program's implementation is compliant.
9	Planned Special Exposures	Requires documented procedures to be established and maintained prior to any PSE. We have not conducted any PSEs, have no current plans to do so, and seriously doubt whether RHP would authorize one, thus we have not yet written a procedure.
10	Leak Testing	Requires documented procedures for leak testing sources and targets. Implementation is adequate. In 2005, we discovered a low activity, unencapsulated Co-60 casting in a pig. This source was not previously listed on our inventory.
11	Control of Access	Specifies Restricted Areas and the Limited Access Area and requirements for access control, entry/exit, posting, etc. and gives requirements for High and Very High Radiation Areas. Implementation is effective
12	Respiratory Protection	Requires a documented respiratory protection program compliant Sec.D.703, 29CFR 1910.134, and ANSI Z.88.2. The <i>Radioactive Respiratory Protection Program</i> is in compliance. Implementation is addressed below
13	Storage and Control of Licensed Material	Establishes the LAA as repository for "01" licensed material and exceptions to such. Requires a documented inventory. Implementation is adequate. A physical inventory, which can not be completed without access to the hot cell would be very desirable.
14	Precautionary Procedures	Requires surveys to identify radiation areas and posting of such and documented procedures for receiving packages. All radiation areas were posted in 2005. We have no general procedure for package receipt, but adequate instructions in procedures for individual containers. No radioactive material was received at Dickerson in 2005.

Section	Title	Status
15	Waste Management	Requires a documented program for waste management. Such a program was submitted in our decommissioning plan which was rejected by RHP.
16	Contamination Control	Establishes various procedures for contamination control including CCZs, clean room, transition area and portal monitoring. Implementation is adequate.
17	Process Safety Control	Requires procedures/RWP's for certain operations involving potential for exposure or release of radioactivity. Implementation is adequate. RWP's were revised in 2003 to reflect personnel changes. The RWP's will need to be modified once more to reflect the departure of Mr. Demory.
18	Environmental	Requires a documented procedure for the regular surveillance of the Dickerson property and the surrounding area. Implementation is adequate.
19	Irradiators	Requirements for irradiators. (See annual report for 04/05 licenses.)
20	Teletherapy	Requirements for teletherapy. (See annual report for 03 license.)
21	Measurements	Specifies RAMs, RSMs, counters; requires calibration procedures and schedules; minimum requirements for dosimetry services. Implementation is adequate.
22	Training	Requires a documented training program and specifies elements thereof. A draft revision of the a new training program has been submitted to RHP. No action has been taken. In the interim we continue quarterly training by the HPC augmented by additional training from the RSO and staff.
23	Document Control	Requires a procedure for distribution and control of documents. We use the corporate wide procedure. Implementation is adequate.
24	Recordkeeping	Requirements for the retention and storage of relevant records. Implementation is mostly adequate.

Regulatory Compliance - Adequacy of Content and Implementation of the Radiation Protection Program

COMAR Section	Adequacy of RPP Content for Compliance	Adequacy of Implementation
D.101a ALARA	The ALARA program as written meets NRC guidelines for ALARA for occupational exposure and release.	See ALARA section below
D.101b RPP	The RPP was previously documented as a number of policies, programs, and procedures. A comprehensive Radiation Protection Program, which ties the various existing programs and procedures which embody our protection program into a cohesive whole was approved and adopted in December. This program adequately addresses the requirements of Part D.	See previous section.
D.101c Annual Review	Requires annual review of RPP.	This annual review for 2005 is in compliance.
D.201 Occupational Exposure	Revision 7 of the Control of Occupational Exposure was approved in December 1999. Many of the elements of Rev. 7 were already in practice. The program is compliant.	Implementation of the RPP is adequate for compliance with occupational dose limits
D.202 Summation	Under current conditions, internal occupational exposure is well below the level requiring summation of internal and external doses, and the WBE TLD serves as the dose of record.	Under current conditions the RPP provides adequate means to keep routine internal exposures significantly below the summation requirement. Accidental exposure exceeding 500 mrem TEDE, has occurred only once, in 1991.
D.203 External dose from airborne	External dose from airborne activity is inconsequential, but nevertheless, would be adequately determined by existing procedures	Adequate.

COMAR Section	Adequacy of RPP Content for Compliance	Adequacy of Implementation
D.204 Deter- mination of Internal Exposure	Although not required pursuant to D.502, the RPP dictates a variety of methods for evaluating airborne activity and for monitoring internal exposure. Personnel sampling is not used routinely (and at typical airborne concentrations would not be practical) but is used for high	Implementation of existing practice is in compliance. Any significant intake is readily detected with existing instrumentation and practices.

COMAR Section	Adequacy of RPP Content for Compliance	Adequacy of Implementation
D.208 Dose to Embryo/ Fetus	The new employee checklist includes the notification to women of the provisions of D.208.	All women employees have received written and oral instruction on the provisions of D.208. However, no woman is currently assigned to duties with expected exposures in excess of 500 mrem in any 9-month period. There were no pregnancies, declared or otherwise, in 2005.
D.301 Members of the Public	The RPP reflects the 100 mrem annual limit to members of the public and the 2 mrem per hour limit in unrestricted areas.	We were in compliance in 2005. The highest exposed cohort received approximately 33 mrem, based on TLD data and conservative assumptions. No area outside of the restricted areas exceeded 2 mrem per hour.
D.302 Compliance with...	The RPP documents measures established to demonstrate compliance with public dose limits.	With TLD measurements at the more highly exposed homes we can demonstrate compliance consistent with D.302b.ii(1).
D.401 Leak Testing	The RPP and enabling procedures adequately consider D.401 as modified by our licenses	Corrective action undertaken in 1998 has remained effective, and implementation is adequate. All required wipe tests were conducted.
D.501 Surveys and Monitoring	The RPP is in compliance for 01 operations.	Corrective action was taken in 2001 to include the welding shop.

COMAR Section	Adequacy of RPP Content for Compliance	Adequacy of Implementation
D.502 Conditions Requiring Monitoring	The RPP is in compliance. Under the provisions of D.502b, we are not required to routinely monitor for internal exposure. The RPP provides for annual evaluation of internal exposure from available air sampling and other data to assure we remain below the 10% action limit. An unlikely intake in excess of 10% of the ALI would be readily detected by the HECM and quantified by follow up whole body counts.	Implementation is adequate
D.601 Access to High Radiation Areas	The RPP is in compliance.	All high radiation areas are accessible only from the LAA with exception of the waste storage roof. Access to these areas is locked when not under the direct control of authorized and knowledgeable personnel.
D.602 Very High Radiation Areas	The RPP is in compliance.	The three potentially very high radiation areas are the hot cell and the irradiators. All three units have access control systems which are compliant with D.602
D.701 Respiratory Protection Engineering Controls	The RPP and respiratory protection program are in compliance.	To the extent practicable, engineering controls are used to limit concentrations of airborne radioactivity. Under routine conditions these controls are effective. Average airborne concentrations of Co-60 in the LAA were less than 1% of the DAC for Class Y.

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COMAR Section	Adequacy of RPP Content for Compliance	Adequacy of Implementation
D.702 Respiratory Protection Other Controls	The Radioactive Respiratory Protection Program has been revised to reflect regulatory changes in both Part D and 29CFR 1910.134. Implementing procedures are under draft review.	Minor recordkeeping nonconformances were noted in 2000. Corrective action has been undertaken to correct areas of noncompliance.
D.703 Respiratory Protection Equipment	The respiratory protection program revision was completed in December 2001 (and approved in March 2002.)	Implementation is adequate. No use of RPE was required in 2005.
D.801 Security of Stored Sources	The RPP is compliant.	The security of cobalt-60 sources is unquestioned. However, on several occasions, the RHP found DU in an unlocked cargo container outside of the LAA. Corrective action has been undertaken, no non-compliances occurred in 2005. Additional security measures have been implemented post 9/11 in response to NRC communiques and orders.
D.802 Control when not in Storage	The RPP is compliant.	Currently no sources are shipped or received at Dickerson
D.901 Caution Signs	The RPP is compliant.	Implementation is adequate.
D.902 Posting	The RPP is compliant.	Implementation remains adequate.
D.904 Labeling	The RPP is compliant.	Implementation is for the most part adequate, however, labeling of DU containing parts was missing or insufficient. Corrective action was undertaken and no non-compliances were noted in 2005.

COMAR Section	Adequacy of RPP Content for Compliance	Adequacy of Implementation
D.906 Receiving and Opening Packages	The RPP is compliant	Implementation is adequate. No radioactive material was received in 2005.
D.1001 Waste Disposal	The RPP is compliant	Implementation is adequate. No radioactive waste shipments were made in 2005.
D.1003 Sanitary Sewage	The RPP is compliant	Implementation is adequate. (See Page 4)
D.1007 Transfer and Manifests	The RPP is compliant	Implementation is adequate.
D.1101 - D.1111 Records	The RPP is compliant	Previous recordkeeping problems have been resolved and no non-compliances were noted in 2005.
D.1201 - D.1206 Reports	The RPP is compliant	Implementation is adequate.

ALARA

The reported collective exposure for 2005 was 4.153 person•rem, nominally a 38% increase from the previous year. However, for reasons stated above a substantial portion of this measured exposure was likely dose to badges no one was wearing at the time. While uncertainties in using control dosimeters to account for exposure during luggage x-rays make adjustments to exposure histories problematic, for the purpose of this evaluation we will use the corrected collective exposure of 2.437 person•rem.

The sources of occupational exposure at Neutron for 2005 are estimated to be:

Hot Cell operations and support	0%
Radwaste operations	3%

Pool and Canal Operations	10%
Maintenance and Repair	36%
Health Physics	35%
Teletherapy	25%
Ambient exposure outside the LAA to direct and skyshine	1%

Neutron deploys 16 environmental dosimeters at fixed locations within the facility. (These are additional to the perimeter dosimeters.) These dosimeters continue to show a downward trend for ambient dose rates throughout the plant.

The exposure to the most highly exposed members of the public was determined to be 32.6 mrem. It must be noted that the 95% confidence interval for the dosimetric methods used is ± 28 mrem which is large in comparison to the annual background corrected dose rates at these low exposures.

Airborne emissions remain less than 1% of Appendix B, Table II, Column 1, effluent concentrations and account for an insignificant fraction of public exposure.

Respiratory Protection Program

Respiratory protection equipment for radiation protection was not needed in 2005. Maintenance, training, and medical clearance programs remain in effect.

Review of Selected Radiation Protection Related Procedures

Proc. No.	Title	Analysis
R1001	<i>Counting Procedures</i>	The procedure has been revised to improve QA methodology and to allow flexibility in the selection of standards. HP staff were trained on the revision and its implementation has been adequate.
R1002	<i>Sampling Procedure</i>	The procedure is adequate for its intended purpose and is properly implemented. A planned revision is in draft form.
R1003	<i>Procedure for Entrance to and Exit from Contamination Control Areas to the LAA Working Area</i>	The procedure is adequate for its intended purpose.
R1006	<i>Disposal of Sewage</i>	This procedure is adequate for its intended purpose and is properly implemented.

R1007	<i>Radiation Detection Instrument Calibration Procedure</i>	The procedure is adequate for its intended purpose
R1010	<i>Radiation and Contamination Levels</i>	The procedure is adequate for its intended purpose, and is properly implemented.
R1011	<i>Procedure for the Limits for the Decontamination and Release of People and Personal Effects from The Limited Access Area</i>	The procedure is adequate for its intended purpose, and is properly implemented. A new form has been devised to expedite recordkeeping
R1012	<i>Procedure for Daily Operating Checkout and Routine Maintenance of the Helgeson Mini-HECM Booth Monitor</i>	The procedure is adequate for its intended purpose, and is properly implemented.
R2028	<i>Procedure for Entrance to the Limited Access Area</i>	The procedure is adequate for its intended purpose, and despite an occasional lapse in log entries is properly implemented
R2029	<i>Procedure for Exit to the Limited Access Area</i>	See R2028 above.

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e-mail: neutronprod@erols.com

23 September 2009

Via FAX (410) 537-3198

Mr. Roland G. Fletcher, Manager
Radiological Health Program
Maryland Department of the Environment
1800 Washington Blvd.
Baltimore, MD 21230

Re: Radioactive Materials Licenses: MD-31-025-04 and MD-31-025-05

Dear Mr. Fletcher,

This letter is in timely response to the Notice of Violation dated September 2, 2009 which we received on September 3.

The two alleged violations are identical, one for the -04 license and one for the -05 license. In their consolidated form they state:

"Section C.26(f)(7) titled, "Specific Licenses for Irradiators" requires the licensee to submit procedures for loading and unloading irradiator sources. Section X.53 (a)(7) titled, "Operating and Emergency Procedures" requires a licensee to have and follow written operating procedures for loading and unloading sources.

Contrary to the requirements of Section C.26(f)(7) and X.53 (a)(7), Neutron currently does not have RHP approved loading and unloading procedures for the D-I (and D-II) Irradiators. Although procedures were previously submitted, the Permanent Injunction of the -01 license prohibits the transfer of Cobalt-60 sources to or from the Limited Access Area (LAA) of the Dickerson Facility. As a result, Neutron no longer has an approved method for loading and unloading sources."

Response

As a preliminary matter, it is true that the original permanent injunction prevents the refueling of

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the irradiators from the main pool, because it states:

“Prohibited activities include, but are not limited to ... c) Transfer of radioactive sources from the LAA to the irradiators by any means...”

However, that injunction was subsequently modified and Neutron was authorized to refuel the irradiators, which it did. The injunction was modified again giving MDE specific authority to authorize such source transfers in the future, so that the court would not need to be involved:

“...the Maryland Department of the Environment be and is hereby authorized to approve additional transfers of radioactive material to, from, and within Neutron’s Dickerson facility ... without the need for further Court action.”

Thus, it is not the permanent injunction which prevents Neutron from using its established and previously approved procedures to load and unload sources from the irradiators, but rather a decision by MDE to prevent Neutron from using those procedures.

As you know, our cobalt-60 source receipt, storage, encapsulation, transfer and utilization facilities are interconnected in a way which provides a means of refueling our radiation processing plants which is uniquely safe and efficient. The Dickerson I and Dickerson II radiation processing plants (“D-I” and “D-II”) were designed, constructed and/or modified in such a way that use of the main storage pool is integral to their long-term operation. The main pool was designed to safely accommodate the receipt and shipment of large casks containing significant quantities of cobalt-60. The main pool was also designed to facilitate the transfer of sources to and from the irradiator pools. Thus, the use of the main source storage pool has always been an integral part of the -04 and -05 licenses, as well as the -01 license against which the permanent injunction was written. During the past few decades, hundreds of sources containing millions of curies of cobalt-60 have been safely transferred using this system without material adverse incident.

In the past, MDE has suggested that we submit alternative procedures for the refueling of the irradiators which would not use the main pool. MDE has, for example, suggested cutting into the shield walls in order to widen the D-II labyrinth so that we could move a cask into the D-II cell and lower the cask directly into the D-II pool. Alternatively, MDE has suggested using a different, smaller cask which Neutron owns.

If Neutron had intended to refuel the irradiators by lowering a cask directly into the irradiator pools, then those pools would have been made larger, so that the cask would not be so close to the source plaque when it is being raised and lowered. In addition, the smaller cask to which MDE has referred was only licensed for 7,000 Ci, while a typical refueling would involve perhaps 200,000 Ci, with individual sources sometimes in excess of 30,000 Ci. Thus, the largest single source Neutron would be able to add would not even be 1/4 the activity of a typical high activity

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source for the D-II plaque. In addition, refueling one small source at a time would require more than two dozen shipments, instead of just one, which is not consistent with ALARA or security considerations, and which would preclude the economic viability of the refueling.

Thus, we do not understand why MDE is choosing to prevent the use of a demonstrably safe and reliable procedure in favor of prospective alternatives which are needlessly risky and prohibitively expensive.

The Maryland Courts granted MDE the permanent injunction against the -01 license due to perceived deficiencies in decommissioning funding assurance for that license only, not the -04 and -05 licenses for which decommissioning funding assurance has been both provided and maintained. There is no reason that the Decommissioning Project for the -01 license cannot be performed in a way which facilitates the continued operation of both D-I and D-II, nor is there any reason that the main pool cannot be used to facilitate the loading and unloading of sources to and from the irradiator pools in a manner which is consistent with the permanent injunction against the -01 license.

Moreover, before we provided the decommissioning funding assurance required by MDE for the -04 and -05 licenses, we sought regulatory guidance from MDE regarding the continued operation of the irradiators in the event the permanent injunction against the -01 license was ultimately granted. MDE advised us (by letter dated March 3, 1999) that:

“... if you are unable to arrange financial responsibility for the -01 license, we believe that arrangements can be reached which would allow the planned decommissioning of the -01 facility to be carried out in such a manner as to permit the continued operation of the -04 and -05 facilities, particularly since similar arrangements have been made before.”

We do not understand why MDE has chosen not to honor the spirit of that guidance. Clearly, denying us the use of the main pool to load the irradiators has adversely impacted their “continued operation”, and will continue to do so in the future. If MDE elects to address this issue in a constructive manner, then it will allow us to use the main pool for operations reasonably required for maintenance and refueling of the radiation processing plants operated under the -04 and -05 licenses. If not, then MDE will be unnecessarily compromising licensed activities for which decommissioning funding assurance has been provided. Particularly in view of the goods, services and revenues generated thereby, we submit that a much more constructive approach to the continued viability of the -04 and -05 licenses is in the interest of the State, Neutron, the environment, the public health and safety, and the general welfare.

In order that this alleged violation may be remedied, please authorize the use of the main pool for the receipt of cobalt-60 and the loading and unloading of the Dickerson I and II irradiators. We have included copies of the relevant procedures for your review.

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Mr. Roland G. Fletcher

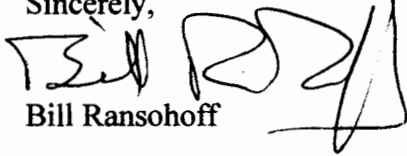
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If you require additional information, or disagree with any statements made herein, please advise the details at your earliest opportunity.

Sincerely,


Bill Ransohoff

NEUTRON PRODUCTS inc

DICKERSON I SOURCE PLAQUE LOADING

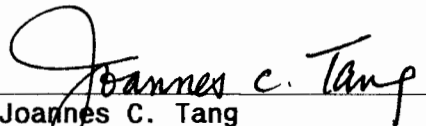
PROCEDURE R 6006

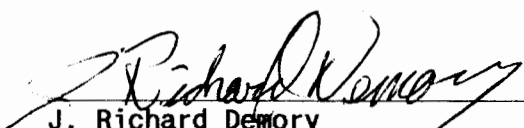
REVISION 4

EFFECTIVE DATE: 02/10/2000

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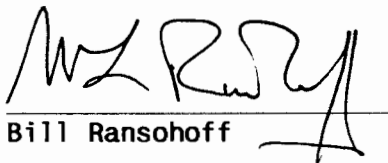
Reviewed for Compliance, Safety,
and Adequacy for Intended Purpose
and Approved


Joannes C. Tang
Radiation Safety Officer, DI
Date Feb. 10, 2000


J. Richard Demory
Source Installer

Date 2-10-2000

Author:


Bill Ransohoff

Change record: This document supersedes
Procedure R 6006, Revision 3.

This is a controlled document and as such shall only be modified in accordance with the latest revisions of Procedure C 9000, Preparation of Quality System Procedures and Procedure C 9001, Document and Data Control. This document is valid only after it has been reviewed and approved with dated signature by all of the above listed authorized personnel.

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DICKERSON I SOURCE PLAQUE LOADING

PROCEDURE R 6006

REVISION 4

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1. PURPOSE

The objective of this document is to describe the source plaque loading of the Dickerson I irradiator.

2. SCOPE

This procedure covers the transfer of doubly encapsulated sources to the Dickerson I pool and the loading of the Dickerson I irradiator source plaque.

2.1 GENERAL CONSIDERATIONS

Source plaque additions are made infrequently. It is therefore necessary that all personnel planning the change review the Dickerson I license and be familiar with requirements under the license for individual source and total source plaque curie limits, as well as all other licensing requirements (the source loading limitations per the license are 750,000 curies total, no one source to exceed 15,000 curies).

The applicable emergency procedures are described in Procedure R 6001, Dickerson I Irradiator Operations, and Procedure R 6007/R 7008 Response to Abnormal Events, Irradiators.

3. DEFINITIONS

For the purpose of this document, the following definition applies:

Designee: An individual who, in the judgement of the RSO is qualified to perform the stated functions, i.e., RSO for another license, an irradiator operator or a member of management with executive responsibility.

Abbreviations:

RSO - Radiation Safety Officer, Dickerson I

LAA - Limited Access Area

4. REFERENCES

The latest revision of the following operating procedures of the Quality System, Radiation Processing Services:

Procedure R 6001, Dickerson I, Irradiator Operations
Procedure R 6007/R 7008 Response to Abnormal Events, Irradiators
Procedure R 1001, Mounting
Procedure R 1002, Sampling
COMAR E.12.01 X.57 and X.25 (Surveys)

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5. PERSONNEL

This operation can only be performed by an individual, certified by the RSO to be competent to perform this procedure. Throughout the procedure this individual is called a Source Installer.

- Authority to proceed with this operation may be granted only by the RSO or the plaque designer.
- Since the operation may require the temporary disengagement of safety system components, this can only be done by the RSO, or designee operating under the RSO's direct instructions.
- The RSO or designee operating under the direct instructions of the RSO, must be present at the start and the completion of the operation to effect required safety system changes.
- The Health Physics Technician shall count the activity on the smears and in the pool and may be required to take the smears.

6. SAFETY

- Adherence to all safety rules and guidelines is required.
- In the event of any occurrence requiring the use of emergency procedures or of any safety system failure, notify the RSO, and follow the instructions listed in Procedure R 6001, Dickerson I, Irradiator Operations and Procedure R 6007/R 7008 Response to Abnormal Events, Irradiators.

7. EQUIPMENT

Audible survey meter (w/irradiator keys)
Pocket dosimeter
12 foot long clamping tool
Hook tool
In-pool table
In-pool storage trees (optional)
Source modules
Source transfer baskets
Source loading instructions
Source changing key
Two 2 X 4's
Hoist (optional)
Lock-out Locks

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8. PROCEDURE

- 8.1.1 Before beginning the process, the Source Installer shall read both this procedure, and the Emergency Procedures, found in R 6001, Dickerson I Irradiator Operations and Procedure R 6007/R 7008 Response to Abnormal Events, Irradiators. He shall also obtain authorization to proceed from the RSO or the plaque designer.
- 8.1.2 The Source Installer and the RSO shall complete the latest revision of the Checklist for Loading Sources in Dickerson I, a copy of which is attached.
- 8.2 Preparations to be made in the LAA:
 - 8.2.1 Adjust water levels in the main pool, the transfer pool, and the irradiator pool to reduce the flow of water from the main pool;
 - 8.2.2 Open the transfer valve between the transfer pool and the main pool;
 - 8.2.3 The tray should be upside down. Using long handled tools, push the tray through the valve until it can be seen on main pool side;
 - 8.2.4 Using a long handed tool and a pre-adjusted pipe wrench attached to positioning cables, rotate the tray to the upright position;
 - 8.2.5 Verify the operability of the RAM over the transfer pool. Alternatively, place a calibrated survey meter at the edge of the transfer pool; and,
 - 8.2.6 Transfer the sources to the transfer pool.
- 8.3 The RSO, or designee, shall confirm that the source is in its down position, the console area safety switch is locked out, and the cell is safe to enter in accordance with the Dickerson I operating procedure.
- 8.4 To prepare the cell for entry, Dickerson I operators shall remove all carriers from the cell.
- 8.5 The RSO or designee shall:
 - 8.5.1 close the main air valve for the DI Irradiator;
 - 8.5.2 turn the source change switch with the key;
 - 8.5.3 turn off exhaust fan, if requested by the Source Installer;

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8.6 The Source Installer shall:

- 8.6.1 open the steel door between the LAA and the irradiator;
- 8.6.2 install 2 X 4's in the door tracks to prevent inadvertent closing of the doors;
- 8.6.3 create a contamination control zone around the area of the irradiator, using rope barriers to restrict travel by unauthorized personnel during the source loading procedure;
- 8.6.4 remove the pool cover;
- 8.6.5 determine that the radiation survey meter is operational and position the unit at pool side;
- 8.6.6 install the table, if necessary;
- 8.6.7 notify the RSO if the Source Installer decides that the air to the photohelics has to be turned off for improved visibility. If this is required, the RSO will:
 - turn off the Uninterruptible Power Supply ("UPS") and the power to the console so that the siren will not be activated (this will cause ADT to be notified); and,
 - turn off the air to the photohelics.

NOTE: The pool circulating pump may also have to be turned off in order to improve visibility. If so, the Source Installer shall inform the RSO before having the pump turned off. If the source loading will not be completed in one day, the circulating pump should be turned back on at the end of the day in order to control pool water temperature.

- 8.6.8 Remove and rearrange sources as specified by the source plaque designer in the source loading instructions. This will normally be done one module at a time starting with the top rack ("E" rack);

A hoist may be used to raise the entire source tree to facilitate this and other steps in this procedure.

- 8.6.9 verify DI pool and main pool water levels are such that they reduce the possibility of water flowing from the main pool to the DI pool.

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- 8.6.10 open the valve between the transfer pool and the irradiator pool;
- 8.6.11 transfer the return sources back to the transfer pool;
- 8.6.12 transfer the replacement sources to the irradiator pool;
- 8.6.13 close the valve between the transfer pool and the irradiator pool;
- 8.6.14 load the irradiator source modules in accordance with the source loading instructions;
- 8.6.15 load the source plaque; correct loading shall be verified by a trained independent individual and both the Source Installer and the independent individual shall sign and date the source loading instructions, thus confirming that have loaded the source modules per the instructions;
- 8.6.16 using a radiation survey meter to be sure no radioactive source is pulled out of the pool, remove the table, transfer baskets, and tools and return them to the LAA;
- 8.6.17 summon the RSO to restore the safety system components which may have been temporarily disabled in step 8.6.7. Also, restart the pool circulating pump, if it had been turned off in step 8.6.7.;
- 8.6.18 put the pool cover back; and,
- 8.6.19 After moving the return sources from the transfer pool to the main pool, close the pass through valve in the LAA.

- 8.7 A qualified individual (i.e., irradiator operator or health physics technician) shall smear the inside of the irradiator cell and the areas within the contamination control zone, and measure the activity. If the activity level is greater than 440 dpm/100 cm², notify the RSO immediately. If the area within the contamination control zone is below 440 dpm/100 cm², barriers may be removed.

If the activity level is greater than 440 dpm/100 cm², decontaminate the cell by cleaning and re-sample. Barriers for the contamination control zone shall not be removed until levels for smearable, removable contamination are below 440 dpm/100 cm².

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8.8 After the source loading is complete, the RSO or designee shall prepare the irradiator to return to service. This includes:

- restoration of safety system components which had been temporarily disconnected;
- restarting the exhaust fan;
- removal of the 2x4's in the door tracks;
- turning the source change switch; and,
- opening the DI main air supply valve.

8.9 The health physics technician shall take pool samples as described in R 1002, Sampling and measure the concentration of cobalt-60 in the pool as described in R 1001, Counting.

8.10 If activity exceeds 10^{-5} uCi/ml and remains constant or increases for 72 hours, there is reason to suspect a leaking source.

8.11 Following his evaluation, the RSO may recommend that the sources be transferred to the main pool and leak tested.

9. SURVEYS

After the installation of sealed sources in the irradiator, it may be necessary to conduct a radiation survey with the radiation source loaded and in its up, operating position to determine the maximum radiation levels in each area adjoining the irradiation cell. Such surveys are to be conducted without product in the irradiator cell which would add to the inherent shielding of the permanent physical structures of the irradiator. Prior to the initiation of any irradiation of product after any increase in the total curie loading of the radioactive sources above the previous highest loading a survey is required. If necessary, such surveys shall be conducted in accordance with COMAR 26.12.01.01.X.57 and X.25.

- A detailed report of the results of the surveys shall be sent to:

Administrator
Radiological Health Program
Maryland Department of the Environment
2500 Broening Highway
Baltimore, Maryland 21224

within 25 days following any increase of the total curie loading above the previous highest total.

The irradiator may be returned to operational status by the RSO, provided the safety system is completely operative and the irradiator meets all

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licensing requirements. The RSO shall document in the Irradiator Logbook and on the latest revision of the Quarterly Maintenance Checklist that the safety system is completely operative .

10. RECORDS

The required records described herein shall be completed, signed, and dated:

- Source loading instructions with information on the identity of the sources, their activity and position, both within the rack and the rack identity, before and after the change.
- Checklist for Loading Sources.
- Surveys.

Records shall be retained for a period of 5 years or as specified under COMAR 26.12.01.01.X.81(f), whichever is longer.

11. CHANGE RECORD

Modified format to be consistent with current C 9000, Preparation of Quality System Procedures.

Deletions:

Page 6 Moved Section 6 "EMERGENCY PROCEDURES" - to Section 6 "SAFETY"

Additions:

Page 2 Section 1 "PURPOSE"

Pages 4-7 Section 8 - Modification of actual procedural steps with requirements to complete a checklist.

Page 8 Section 10 "CHANGE RECORD"

Page 8 Section 12- Attachments

12. ATTACHMENTS

The latest revision of:

- Checklist for Loading Sources in Dickerson I and,
- a completed "Safety Evaluation for New Procedure" or "Procedure Change Form".

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Issued for use J. Tang 2/10/00
Verified latest Revision _____

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Revision 0, 02/10/00
R 6006

Checklist for Loading Sources in Dickerson I

Date of source loading ____/____/____

Before Source Loading Takes Place:

	Installer (Init.)	RSO (Init.)
Installer certified by RSO	_____	_____
Read Procedure R 6006 within past 2 weeks	_____	_____
Read emergency procedure section of R 6001 and R 6007/R 7008	_____	_____
Source installer preparations in LAA		
Water levels in all pools (main, transfer, DI) adjusted as necessary	_____	_____
RAM over transfer pool operational	_____	_____
Sources transferred from main pool to transfer pool	_____	_____
RSO or designee preparations:		
Main air valve for DI closed	_____	_____
Console area safety switch locked out	_____	_____
Source change switch turned	_____	_____
Exhaust fan turned off	_____	_____
Source Installer preparations in irradiator		
Doors blocked open	_____	_____
Contamination control zone established	_____	_____
Survey meter operational and positioned near edge of DI pool	_____	_____
After Source Loading and all Transfers:		
If air to photohelics had to be turned off during source loading, air and power turned back on		_____
Irradiator pool circulating pump on	_____	_____
Source loading instruction sheet signed and dated	_____	_____
Transfer valve between irradiator pool and transfer pool closed	_____	_____
Transfer valve between transfer pool and main pool closed	_____	_____
Inside of irradiator cell smeared	_____	_____
Safety system check performed. Latest revision of Quarterly Maintenance Checklist attached		_____
Where applicable, survey of shielding with no product in cell and source up, and MDE report of survey results		_____

Pool water activity: _____
Record of Smear _____ dpm/100 cm² If repeated _____ dpm/100 cm²

Reviewed by _____
Radiation Safety Officer, Dickerson I

Filed: DI Source Plaque Loading

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Retention: At least 5 years

SAFETY EVALUATION FOR NEW PROCEDURE OR PROCEDURE CHANGE

Evaluation applicable to: R 6006, Dickerson I Source Plaque Loading Rev. 04

Radiation Safety Evaluation	Yes	No
1. Will the probability of an accidental radiation exposure or release from the facility of radioactive material previously evaluated be increased?		✓
2. Will the potential magnitude of a radiation exposure or release from the facility of radioactive material previously evaluated be increased?		✓
3. Will a new mechanism for radiation exposure(s) or release from the facility of radioactive material be created?		✓
4. Will the probability of malfunction of equipment important to radiation safety be increased over previous evaluations?		✓
5. Will the consequences of malfunction of equipment important to radiation safety be increased over previous evaluations?		✓
6. Could a different type of malfunction of equipment important to radiation safety occur?		✓
7. Will the margin of safety to a license or regulatory limit be reduced?		✓

Reasons/Justification

Provide a narrative description of the proposed change and provide the basis for the responses to Questions 1 through 7 above. Continue on additional pages if required.

Safety related issues were addressed in this revision, but the evaluation showed that the safety of the facility was not reduced. Changes stated in the Change Record Section.

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SAFETY EVALUATION		
Description of safety system evaluated: <u>See procedure</u>		
Unreviewed safety question exists? Check yes if answer to any of Questions 1 through 7 is yes)	Yes	No
		✓

Prepared by: _____ Date _____

Reviewed by: _____ Date _____

Reviewed by: _____ Date _____
Radiation Safety Officer, -01 License

Reviewed by: Joannes C. Tang Date 2/10/2000
Radiation Safety Officer
-04/-05 Licenses

Referred to Internal Review Committee (if unreviewed safety question(s) exists) by:

_____ Date _____

DEFINITION OF UNREVIEWED SAFETY QUESTION (Reference: 10 CFR 50.59)
An unreviewed safety question, as interpreted for application to Neutron Products, is one in which:
1. The probability of occurrence or consequences of an accident or equipment malfunction previously evaluated may be increased;
2. The possibility for an accident or equipment malfunction of a different type than previously evaluated may be created; or,
3. The margin of safety to license or regulatory limits is reduced.

Filed: Document Control Coordinator, w/Document
Retention Time: Same as document

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MARYLAND DEPARTMENT OF THE ENVIRONMENT
AIR AND RADIATION MANAGEMENT ADMINISTRATION
RADIOLOGICAL HEALTH PROGRAM
RADIOACTIVE MATERIALS ENFORCEMENT AND COMPLIANCE UNIT
1800 WASHINGTON BLVD.
BALTIMORE, MARYLAND 21230
410-537-3302

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RADIOACTIVE MATERIALS INSPECTION REPORT

Licensee: Neutron Products, Inc.
22301 Mt. Ephraim Road
P.O. Box 68
Dickerson MD 20842

Radioactive Materials License Number: MD-31-025-01

Facility Contacts: Bill Ransohoff Director, Plant Operations
Jeff Williams Radiation Safety Officer


Phone: 301-349-5001
FAX: 301-349-5007

Dates of Inspection: January 10-11, 2007



Alan Jacobson, Health Physicist Supervisor

5/3/2007
Date



Danny Adams, Health Physicist III

05/03/2007
Date

PROGRAM

NPI's license to manufacture and distribute cobalt-60 sealed sources for teletherapy and radiation processing is currently under a permanent injunction. A November 2, 2000 Montgomery County Court Order requires NPI to cease and desist from conducting any activities under the license except as specifically approved by the Department. Currently, NPI possess **321,700** Curies of cobalt-60. In addition, the radioactive waste inventories were, 1635 Curies-Main Pool, 58 Curies-North Canal and 112 Curies-Dry Storage (137 drums, 23 B-25s, plastic bags and cardboard boxes). Only approximately **70,000** Curies has a specific activity sufficient for teletherapy grade sources. Current authorized activities include maintenance of safety systems, survey meter calibration, Health Physics sampling and storage of cobalt-60. NPI employs **62** workers, with 4 of these employees working in the Limited Access (LAA). Members of this LAA crew are spending progressively more time working outside of the LAA. By regulation and confirmed by the Maryland Court of Special Appeals, NPI's LAA must be decommissioned in a safe and timely manner. Private consultants contracted by MDE estimated the cost of this process to be between 6 and 21 million dollars. In a February 4, 2004 letter to the Department, Jackson Ransohoff estimates decommissioning costs to range between 30 and 40 million dollars. Currently, NPI and MDE have approximately **\$60,000** in escrow for the shipment of radioactive waste. Apparently, NPI has limited resources and/or they lack a commitment from their management to facilitate the decommissioning process. The United States Environmental Protection Agency has verbally indicated that they would step in and immediately maintain safety systems and stabilize potential hazards in the event of an accident or if the company decided to abandon the site. NPI's senior Management has both, verbally and in writing, stated that they will only comply with those radiation regulations that they agree with and will continue to violate requirements that they disagree with. Enforcement action and litigation are in progress.

SCOPE OF INSPECTION

Messrs. Danny Adams and Alan Jacobson of the Maryland Department of the Environment's (MDE) Radiological Health Program (RHP) conducted a radioactive materials inspection of NPI's 01 license on January 10-11, 2007. The inspection examined radiation safety, compliance with conditions of your license, status of compliance with violations cited from the previous inspection, adherence to procedures and proper maintenance of records, interviews with personnel, general observations, and independent measurements. As a result of the inspection, the Inspection Team identified specific concerns and certain activities that were found to be in violation of the Department's requirements. These findings were discussed with Ms. Kathy Bupp, Messrs. Jeffrey Williams and William Ransohoff during the licensee management exit interview held on January 11, 2007. The Inspectors prepared and issued MDER E-1, Radioactive Material Inspection Findings and Licensee Acknowledgement Form. A Departmental letter-Notice of Violation will be sent to NPI.

INTERVIEWS

Interviews were conducted with the following NPI employees:

Jeffrey Williams	Radiation Safety Officer
Billy Ransohoff	Project Engineer
Kathy Bupp	Health Physics Technician
Danny Wineholt	LAA-Health Physicist

SPECIFIC AREAS OF REVIEW

The following areas were inspected and reviewed: Dosimetry, Occupational Exposures, Random Inspections, Quarterly Audits, Radiation Safety Committee Minutes, Respiratory Protection Program, Inventory, Pool Water Quality, General Operations in the Limited Access Area (LAA), Implementation of Radiation Safety Program, Boundary Monitoring, One Kilometer Surveys, Shipping and Receiving Records, Floor Monitoring, Health Physics Monthly Reports, Disposal of Radioactive Waste, Training, Air Monitoring, Survey Meter Calibration, Water Monitoring, Whole Body Counting Records, Exposure to Members of the General Public, Posting of Required Documents, Soil Contamination, Compliance with the License Termination Rule, Financial Assurance for Decommissioning, ALARA (D.101 requirements), Review of the Radiological Sample Counting System, Review of the Main Pool Inventory and Waste Storage Records.

STATUS OF HOT CELL

The Hot Cell manipulators, Hot Cell door and Hot Tool Room door were locked and sealed by MDE Inspectors on September 19, 2002. The Hot Cell has not been used or entered since then.

INDEPENDENT PHYSICAL MEASUREMENTS

Ludlum model 2241-3, serial number 220144, calibrated 06/16/2006

Hot Tool room contact with door 16.5 mR/Hr.
South Canal (~1 meter) reading 24.2 mR/Hr.
Main Pool (~1 meter) reading 5.7 mR/Hr.
Clean room tub drain (~6 inches) reading 11.4 mR/Hr.
LAA courtyard open door north 63 mR/Hr.
LAA courtyard open door south 80.5 mR/Hr.
Entrance to LAA 1.44 mR/Hr.
Transfer Pool 1.34 mR/Hr. at 1 meter
D-2 Resin 644 uR/Hr. at 1 meter
Sorting table 3.67 mR/Hr. at contact
Shielded condo/sealand container (~1 foot) 540 uR/Hr.
Sealand container of soil 2.65 mR/Hr. contact

Inspectors conducted a property survey of the Fisk residence on 1/11/07. An Eberline PRM-6 SPA-3 probe, calibrated 03/21/2006 was used. A background count of 20,000 counts per minute (cpm) was established. No significant readings above background were identified. The survey was requested by Mr. Fisk. No contamination was found. Interview was held with Mr. Fisk prior to the survey. Results were discussed with Mr. Fisk, by phone after the survey was completed.

CONCERNS

1. Inspection findings indicate that NPI does not have the trained personnel, financial resources and management commitment to decommission the Limited Access Area (LAA) in a timely, safe and predictable manner as required. Trained and experience personnel have resigned during the past years and have not been replaced. A broken window located in the welding shop by the LAA and 2 broken windows by the courtyard were observed. Interviews revealed that broken windows are not reported to Management for repair. Bill Ransohoff stated that NPI does not budget money for dry

pond remediation or radioactive waste shipments. The Court Order-Permanent Injunction was not posted at the Administrative Entrance.

2. The inspection team identified numerous violations of the November 3, 2000 Montgomery County Circuit Court Order. Several of these violations are repetitive in nature and adequate corrective actions have still not been implemented.
3. NPI continues to release radioactive materials into the environment in an uncontrolled manner. The dry pond and adjacent areas are contaminated with concentrations of cobalt-60 that exceed regulatory limits and corrective action has still not been implemented. NPI conducts monthly surveys of residential properties within a one-kilometer radius of the plant, however they have not found any cobalt-60 contamination in the past years.
4. Dickerson residents living near the plant are exposed to unnecessary levels of radiation caused by radioactive waste stored on site. NPI has missed many waste shipment deadlines. NPI estimates the highest radiation exposure to a member of the general public to be (46 millirem above background) caused by radiation that is emitted from the dry waste storage buildings.
5. NPI has still not submitted an adequate decommissioning plan or waste Disposal Plan prepared in accordance with licensed waste shipment criteria and State Regulations. NPI's position on this issue is clear, documented and on file with the Department. NPI does not intend to comply until a compromise is reached with the Department or the requirements are changed.
6. NPI management and their Health Physics Consultant have not been effective in correcting ongoing violations and concerns. Most of these violations and concerns are not being addressed in either the monthly radiation protection audits or the annual review of the radiation protection program-content and implementation. The monthly audits often address issues unrelated to problems at the Dickerson facility and appear to provide only a minimal improvement to the radiation safety program at NPI.
7. NPI continues to own, store and possess cobalt-60 sources and waste under a court order-permanent injunction without an approved waste disposal plan and an approved decommissioning plan. In addition, NPI continues to acquire teletherapy sources (for profit) and ship them to Southwest Research in San Antonio Texas for storage thereby avoiding disposal costs. NPI continues to acquire depleted uranium (for profit) and store this licensed material at a NRC licensed facility in West Virginia, once again, avoiding disposal costs. Furthermore, NPI still has not implemented corrective actions necessary to comply with ongoing violations regarding waste disposal, soil concentration limits, radiation levels, releases of radioactive material, financial assurance for decommissioning and license termination. NPI has missed numerous Court Ordered radioactive waste shipment deadlines. NPI has still not taken the first steps necessary to comply with Section C.29. Section A.16 (a)(1) titled, "Deliberate Misconduct" prohibits a licensee, an employee of a licensee from engaging in deliberate misconduct that causes a licensee to be in violation of any rule, regulation, order or any term, condition or limitation of a license issued by the Department. Section A.16(c) describes deliberate misconduct by a person to be an intentional act or omission that a person knows, would cause a licensee to be in violation of any rule, regulation, order or any term, condition or limitation of any license issued by the Department. Section A.16 is a new regulation that became effective

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on October 27, 2003. NPI has a very contentious relationship with the Department. Over the years, the RHP has documented thousands of violations at NPI, which have resulted in a number of enforcement actions against the company. One of the apparent problems with NPI is that its President, Jackson A. Ransohoff, is unwilling to comply with certain regulations that MDE has cited repeatedly, year after year. In addition, Jackson Ransohoff has refused to pay NPI's annual licensing fee. He has repeatedly stated that he will comply with only those regulations and requirements that he agrees with.

DESCRIPTION OF VIOLATIONS

Certain activities conducted under your license were found to be in violation of the Code of Maryland Regulations 26.12.01.01 titled, "Regulations for Control of Ionizing Radiation." These violations are presented below:

1. Section C.31(c) titled, "Specific Terms and Conditions of Licenses" and License Condition 22.B(2), requires, in part, that all soils, wherever found, contaminated by NPI licensed activities and exhibiting levels of cobalt-60 contamination exceeding 8 picocuries per gram above background, must be removed by NPI and properly stored/disposed of as radioactive waste.

The Montgomery County Circuit Court Order-Civil Case 199036 (Montgomery County Circuit Court Order) dated November 3, 2000, requires NPI to comply with all of the current requirements of the applicable statutes, regulations and the provisions of the license.

The Stipulation and Settlement of Civil Case No. 76639 in the Circuit Court of Montgomery County dated January 3, 1994, requires NPI to demonstrate compliance with all of the current requirements of the applicable statutes, regulations and the provisions of the license by June 15, 1994.

Contrary to the above, NPI failed to remove cobalt-60 contaminated soil exceeding the above-specified limit. NPI remains in continuous violation of this requirement since May 23, 1989. For example, NPI still has not removed the soil contaminated with cobalt-60 from the adjacent railroad property to establish compliance with the 8.0 picocuries per gram concentration limit. Furthermore, monthly soil samples collected from the dry pond area and analyzed by NPI personnel in April and May 2006 also exceeded this regulatory limit, however these soils were not removed. On December 1, 2005, MDE Inspectors collected 6 soil samples from the dry pond and adjacent areas. Results of laboratory analysis indicate soil concentration the samples that ranges from 9-87 picocuries per gram. Since then, NPI failed to remove any soil from these areas. Furthermore, NPI accumulated a stockpile of contaminated soil and has refused to ship this radioactive waste for disposal. Finally, NPI has missed this June 15, 1994 deadline and continues its willful refusal to remediate this property.

2. Section D.101(a) titled, "Radiation Protection Programs" states that in addition to complying with all other provisions of these regulations, a licensee shall use all means to maintain radiation exposures and releases of radioactive material as low as reasonably achievable (ALARA).

The Montgomery County Circuit Court Order requires NPI to comply with all of the current requirements of the applicable statutes, regulations and the provisions of the license.

- A. Contrary to the above, NPI failed to use all means necessary to maintain releases of radioactive material as low as reasonably achievable. Specifically, NPI has failed to use means such as the adequate containment of radioactive materials, proper waste storage practices and regular shipments of radioactive waste, to a licensed repository. On December 1, 2005, MDE Inspectors collected 6 soil samples from the dry pond and adjacent areas that exceeded regulatory limits. As a result, NPI is not maintaining control over their radioactive material and it is continuing to be released. In spite of curtailed source-manufacturing activities, NPI continues to release cobalt-60 into the environment in an uncontrolled manner. Contaminated areas of the LAA lack adequate containment and release pathways are not continuously monitored. NPI has refused to adequately clean these contaminated areas, remove contaminated soils, ship radioactive waste as required and install containment necessary to prevent uncontrolled releases of radioactive material.
 - B. Contrary to the above, NPI failed to use all means necessary to maintain radiation exposures to levels as low as reasonably achievable. Specifically, NPI failed to use means such as shielding of radioactive waste in storage and shipment of radioactive waste in accordance with license conditions. As a result, NPI employees and residents living near the plant are exposed to levels of radiation emitted from the waste storage areas that are not ALARA.
3. Section C.31(c) titled, "Specific Terms and Conditions of Licenses" and License Condition 21.B requires that, within 90 days of the issuance of the license, NPI must submit to the Department for approval, a comprehensive plan for disposal of all low level radioactive wastes in accordance with those specifications defined in this condition.

The Montgomery County Circuit Court Order requires NPI to comply with all of the current requirements of the applicable statutes, regulations and the provisions of the license.

Contrary to the above, NPI's low level radioactive waste plan was submitted to MDE on December 10, 1999; however, upon review it was found to be inadequate and as of this date a comprehensive plan acceptable to the Department has not been submitted. Deficiencies in the plan were discussed in a Departmental letter dated March 20, 2000, but NPI has failed to adequately respond. Specifically, the plan submitted by

ORIGINAL

NPI failed to include a waste shipment schedule that meet the deadlines described in License Condition 21.B.

4. Section C.29 (c)(2) titled, "Financial Assurance and Recordkeeping for Decommissioning" and License Condition 36 requires the licensee to submit a Decommissioning funding plan and financial assurance in accordance with dates and criteria set forth in this section.

The Montgomery County Circuit Court Order requires NPI to comply with all of the current requirements of the applicable statutes, regulations and the provisions of the license.

Contrary to the above, NPI failed to provide an adequate decommissioning funding plan and financial assurance in accordance with the criteria set forth in this regulation. On October 20, 2000, the RHP received NPI's Decommissioning Plan dated October 27, 2000, which included a planned schedule for radioactive waste shipments. The RHP has reviewed this plan and determined that it is inadequate because it did not demonstrate compliance with the current radioactive material license waste disposal criteria. Table 2.1 of this plan described a 12-year shipment schedule for only a small fraction of the total activity of current radioactive waste inventory. The plan did not describe the shipment schedule and protocol for the disposal of the contaminated soil in storage. All radioactive waste that was generated prior to August 1999 was required to be shipped for disposal by August 2004. NPI has been in continuous violation of this requirement since April 13, 1999 as upheld by the Maryland Court of Special Appeals Case No. 2338 filed September 19, 2001.

5. Section C.29(g)(2) titled "Financial Assurance and Recordkeeping for Decommissioning" states that that no person shall receive, possess, use, transfer, own, or acquire radioactive material of a type described in paragraphs (a) and (b) of C.29 for more than 180 days following the dates prescribed in the section for submittal of a decommissioning funding plan or certification, if the decommissioning funding plan or certification has not been approved by the Agency.

License Condition 36 requires the licensee to conduct activities in accordance with Section C.29.

The Montgomery County Circuit Court Order requires NPI to comply with all of the current requirements of the applicable statutes, regulations and the provisions of the license.

Contrary to the above, NPI has still not met the financial assurance requirements. Furthermore, NPI's decommissioning funding plan has not been approved by the Agency. Despite NPI's failure to provide an adequate decommissioning funding plan, the company has continued to possess radioactive material of a type described in C.29(a) after the April 13, 1999 deadline. NPI has been in continuous violation of

this requirement since April 13, 1999. NPI has refused to initiate the steps necessary to decommission the facility in a timely, safe and predictable manner as required.

6. Section C.31(c) titled, "Specific Terms and Conditions of Licenses" and License Condition 21.B prohibits NPI from storing radioactive waste in areas other than the main pool/canals for a period exceeding 2 years. License Condition 21.B further prohibits NPI from storing radioactive waste in the main pool/canals for greater than 4 years. Radioactive waste generated prior to August 1999 that is stored in the main pool/canals shall be shipped for disposal by August 2004.

The Montgomery County Circuit Court Order requires NPI to comply with all of the current requirements of the applicable statutes, regulations and the provisions of the license.

- A. Contrary to the above, NPI missed the August 2004 deadline to ship approximately 1600 curies of radioactive waste, generated prior to August 1999 and stored in the Main Pool/ Canals.
- B. Contrary to the above, NPI failed to ship for disposal the following radioactive waste in accordance with waste shipment requirements.
 - i. Resin from the main pool, 3 cubic ft, containing 1 curie of cobalt-60, generated 8/10/2001
 - ii. Approximately 600 cubic feet of soil contaminated with cobalt-60 generated in November 2000.
 - iii. 6 drums and 33 boxes of radioactive waste stored in the shielded waste container prior to 6/1/1999.
 - iv. 1 drum metal generated 6/23/1999
 - v. 1 drum DAW generated 7/13/1999
 - vi. 2 Tubes (cladding and teletherapy) in Pool generated 1/2000
 - vii. 1 Tube (teletherapy waste) in Pool, generated 6/20/2000
 - viii. 1 Tube, south canal generated 3/28/2001
 - ix. 6 Tubes, main pool, generated 5/2/2001
 - x. Container FD004, DAW, generated 9/7/2001
 - xi. Container FD005, DAW, generated 10/10/2001
 - xii. Container FD0010, DAW, generated 12/30/2003
 - xiii. Container FD011, DAW, generated 12/30/2003
 - xiv. Container FD012, DAW, generated 4/12/2004
 - xv. Container FD013, DAW, generated 4/12/2004
 - xvi. Container FD015, DAW, generated 4/12/2004
 - xvii. Container MD016, metal & pvc, generated 4/12/2004
 - xviii. Container MD017, metal, generated 4/12/2004
 - xix. Container FD020, DAW, generated 10/01/2004
 - xx. Container FD021, DAW, generated 10/01/2004
 - xxi. 1 Steel Drum, Resin, generated 10/04/2004

7. Section C.32 titled, "Expiration and Termination of Licenses and Decommissioning of Sites and Separate Buildings or Outdoor Areas" requires, in part, that each licensee shall either begin decommissioning its site, buildings and outdoor areas in accordance with Agency requirements or submit a decommissioning plan within 12 months when the licensee's right to operate has been terminated either by court action or by action of law or regulation.

Section C.32(g)(1) requires a licensee to complete decommissioning as soon as practicable but no later than 24 months following the initiation of decommissioning. Section C.32(g) (2) requires the licensee to request license termination as soon as practicable but no later than 24 months following the initiation of decommissioning.

The Montgomery County Circuit Court Order requires NPI to comply with all of the current requirements of the applicable statutes, regulations and the provisions of the license.

In accordance with the above, NPI's right to conduct operations for the purpose of manufacturing and distribution of sources in accordance with the 01 license was placed under permanent injunction and that permanent injunction was upheld by the Maryland Court of Special Appeals in December 2001. NPI failed to submit an adequate decommissioning plan in accordance with paragraphs (f) and (g) of these regulations. Furthermore, NPI has not yet begun to decommission the site, buildings and outdoor areas. Finally, NPI has still not submitted an adequate decommissioning plan in accordance with the criteria specified in paragraphs (f) and (g).

8. COMAR 26.12.03.02 paragraph E titled, "Annual Fees for Licenses to Possess or Use Radioactive Materials" requires a person with a license to possess or use radioactive material to pay to the Department an annual licensing fee in accordance with a fee schedule set forth in Regulation .03C of this chapter. The fee shall be paid on or before the first day of the month in which the anniversary of the license date occurs.

The Montgomery County Circuit Court Order requires NPI to comply with all of the current requirements of the applicable statutes, regulations and the provisions of the license.

Contrary to the above, NPI failed to pay their annual licensing fee for multiple years. Although NPI's right to conduct operations for the purpose of manufacturing and distribution of sources in accordance with the 01 license was placed under permanent injunction and that permanent injunction was upheld by the Maryland Court of Special Appeals in December 2001, the payment of the annual fee is required until the facility is decommissioned and the license is terminated in accordance with the criteria specified in Section C.32 titled, "Expiration and Termination of licenses and Decommissioning of Sites and Separate Buildings or Outdoor Areas."

9. Section D.904(a) titled, "Labeling Containers and Radiation Machines" requires each licensee to ensure containers of licensed material bear a durable, clearly visible label bearing the radiation symbol and the words "CAUTION, RADIOACTIVE MATERIAL" or "DANGER, RADIOACTIVE MATERIAL".

Contrary to the above, NPI failed to label all containers of licensed material. During the inspection three containers located in the LAA courtyard, with various amounts of licensed material, were not posted with a "CAUTION, RADIOACTIVE MATERIAL" or "DANGER, RADIOACTIVE MATERIAL" labels.

10. Section C.31(c) titled, "Specific Terms and Conditions of Licenses", License Condition 37 and Procedure 2028 titled "Procedure For Entrance To The Limited Access Area" prohibits eating drinking and smoking in all parts of the LAA. The June 23, 1988 Departmental Order states that the licensee shall immediately stop all eating, drinking and smoking in the offices and work areas of the Limited Access Area.

Contrary to the above, NPI failed to ensure that licensed procedures, and sound radiation protection principles are being adhered to at this licensed facility. During the inspection there were multiple indications that personnel are routinely drinking and eating in areas where radiation and radioactive materials are being used and radioactive contamination exist. Food containers (two (2) coffee cups, one (1) approximately 3/4 full of sunflower seed shells, and a fast food drink container) were identified in the Limited Access Area. Practical procedures and sound radiation protection principles dictate that personnel do not "routinely" consume drinks in areas that are controlled for radiological purposes and the consumption of food in these areas is prohibited.

11. Section C.31(c) titled, "Specific Terms and Conditions of Licenses" and License Condition 16 require the Health Physicist Consultant, retained by the licensee to submit monthly evaluations regarding health physics/radiation safety status at the facility as it relates to ongoing and future operations under the license.

Contrary to the above, Monthly Evaluations submitted to the Agency failed to include health physics/radiation safety status of the facility as it relates to ongoing and future operations under the following license activities.

- A. Removal and disposal of cobalt-60 contaminated soils as required by License Condition 16.
- B. Development and implementation of a Departmental Approved Radioactive Waste Disposal Plan in accordance with License Condition 21(B).
- C. Financial Assurance and Recordkeeping for Decommissioning as required by Section C.29(c)(2) and Section C.29(g)(2).
- D. Expiration and Termination of licenses and Decommissioning of Sites and Separate Buildings or Outdoor Areas as required by Section C.32(g).

12. Section C.31(c) titled, "Specific Terms and Conditions of Licenses" and License Condition 17(h) requires the licensee to conduct monthly surveys of residential properties located within the 1-kilometer radius of the plant. NPI Environmental Survey-Type III Procedure dated 10/3/1984 states that at least one site per month will be surveyed.

Contrary to the above, the licensee failed to conduct these surveys during the months of July 2006 and January 2007. During the calendar year of 2006, only 8 different properties were surveyed.

13. Section C.31(c) titled, "Specific Terms and Conditions of Licenses" and License Condition 22(c) requires the licensee to conduct radioactive contamination surveys on all floor surfaces within the facility outside of the LAA on a monthly basis.

Contrary to the above, the licensee failed to conduct the required floor surveys during the months of February and June 2006.

MISCELLANEOUS NOTES

-NPI monitors 62 employees using whole body monthly badges and quarterly TLDs provided by ICN-Global Dosimetry Solutions Inc.

-In accordance with J.11 (e), NPI sent individual monitoring reports to terminated employees during the year.

-NPI monitors 25 locations on the perimeter of the facility. The maximum annual exposure was 286 in the dry pond. No location exceeded or approached the 500 mRem per year limit.

-Whole Body Counting, 9 employees who are authorized to work in the LAA were counted. All were less than MDA (2 nCi). The ALI for class Y cobalt-60 is 30,000 nCi. There were no ingestions or inhalations.

-NPI monitors several residential homes continuously with TLDs, collects data and adequately demonstrated compliance with the 100 mRem per year dose limit for individual members of the public by measurement and calculation. NPI estimates that the highest exposed member of the general public received 46 mRem for the year.

-NPI test pool water activity, pH and conductivity on a weekly basis. Conductivity ranged between 1.5 and 3.5 micro siemens-cm. The pH ranged between 4.9 and 5.76.

-Residential Homes-Continuous Monitoring Results for the year, Fisk 134 mRem outside, Fisk 65 mRem inside, Carter 145 mRem outside, Carter 128 mRem inside.

-NPI reports that the internal exposure to the most likely cohort from airborne release from the hot cell exhaust is less than 1 mRem CEDE as determined by the EPA's Comply program.

-NPI reports the disposal of approximately 300,000 gal sewage to WSSC for the year, 1.86 E-6 uCi/ml. No monthly average exceeded 3.0 E-5 uCi/ml.

-NPI's maximum perimeter monitors are #2013 Left Fence by Rail Road 256 mRem and 32019 Dry Pond 253 mRem.

-NPI conducts monthly surveys of residential properties located within a 1 kilometer radius of the plant. No activity was detected in this year.

-NPI Soil Sample Data- Most Dry Pond samples exceeded the 8 pCi per gram limit, See attached DHMH radiation Laboratory report.

-Drums of contaminated soil are stored outside, not protected from weather. Rusted lids and missing retaining rings were observed.

ATTACHMENTS

MDER Form E-1, Inspection Finding and Licensee Acknowledgement 1/11/2007

Monthly Cobalt-60 Inventory Record 2/13/2007

Memo from Bill Ransohoff, Procedures 3/6/2007

Memo from Bill Ransohoff, RSC Meetings 3/7/2007

Wipe Survey of LAA 1/16/2007

Waste Manifest 10/25/2006 Shipment

Radioactive Waste-Dry Storage Log 3/8/2007

Annual Review-Radiation Protection Program, Content and Implementation 6/30/2006

Property Diagram

Leak Tests for Sources in Dry Storage 9/25/2006

Estimate of Rad Waste inventory 4/12/2006

Perimeter Monitoring Report 1/25/2007

FORM E-1

**RADIOACTIVE MATERIAL
INSPECTION FINDINGS AND LICENSEE ACKNOWLEDGEMENT**

I. Licensee

Neutron Products, Inc.
22301 Mt. Ephraim Road
P.O. Box 68
Dickerson, MD 20842

II. License No.

MD-31-025-01

III. Date of Inspection

1/10 & 1/11/2007

IV. Inspection Findings and Licensee Action

The inspection was an examination of the activities conducted under your license as they relate to radiation safety and compliance with the Code of Maryland (COMAR) 26.12.01 "Regulations for Control of Ionizing Radiation", and the conditions of your license. The inspection consisted of selective examinations of procedures and representative records, interviews with personnel, and observations by inspector. The findings of this inspection are as follows:

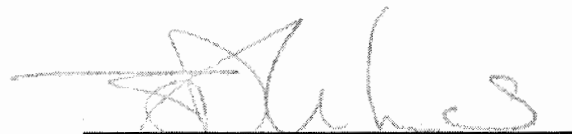
- A. ☐ No current use or storage of licensed radioactive material (no program). The licensee was informed that upon receipt of radioactive material RHP must be notified.
- B. ☐ Issuance of an Agency E-1: Within the scope of the agency inspection, no items of noncompliance or unsafe conditions were found. No action is required by the licensee.
- C. ☐ Issuance of an Agency E-2: Within the scope of the inspection, violations of minor significance were found. For any violation, corrective action must be immediately initiated. Within the 20 calendar days of your receipt of this notice, you are to provide the Department with written statements of explanation describing:
1. corrective steps which have been or will be taken by you, and the results achieved or anticipated;
 2. corrective steps which will be taken to avoid further violations; and
 3. the date when full compliance will be achieved.
- Such a statement or explanation must be provided on each of the items listed.
- D. ☒ Issuance of an Agency E-1 with a letter sent to the licensee further describing Agency requirements. For any violation, corrective action must be immediately initiated.

V. Licensee Acknowledgement

The Inspector has explained and I understand any items of noncompliance identified during this agency inspection. Furthermore, I acknowledge that, if an Agency E-2 Description of Violations was issued, failure to comply may result in the revocation, suspension or modification of the license and possible fines for each day the violations continue.

1/11/2007
Date

Alan Jackson
RAM Inspector


Licensee Representative-Title or Position

(Yellow) Licensee File Copy



NEUTRON PRODUCTS inc

22301 Mt. Ephraim Road, P. O. Box 68
Dickerson, Maryland 20842 USA
301-349-5001 FAX: 301-349-5007
e-mail: neutronprod@erols.com

CONFIDENTIAL

February 13, 2007

Mr. Roland Fletcher
Radiological Health Program
Maryland Department of the Environment
1800 Washington Blvd.
Baltimore, MD 21230

Via Fax: 410-537-3198

*** Original to be mailed ***

Dear Mr. Fletcher,

This letter is to update the monthly cobalt-60 inventory on the 01 license.

As of January 31, 2007 the inventory was 314,600 Ci. In addition, as of January 31, 2007, the radwaste inventories were:

Main Pool	1600 Ci
North Canal II	56 Ci
Dry Storage	110 Ci

If you have any questions, or require additional information, please do not hesitate to contact us.

Sincerely,

Neutron Products, inc.



Edmond J. DeRosa
Manager, Teletherapy Operations

ORIGINAL

NEUTRON PRODUCTS inc

22301 Mt. Ephraim Road, P.O. Box 68, Dickerson, MD 20842

301-349-5001 Fax: 301-349-2433

neutronprod@erols.com

FAX LEAD PAGE

Company:	MDE/RHP	From:	BILL RANSCHOFF
To:	ALAN JACOBSON	Pages:	3 (Incl. Lead Pg.)
Fax Tele. No:	410 537 3198	Date:	3/6/2007
CC:		Ref No:	07-092
Re:			

• Comments:

ALAN -

I KNOW THE LICENSE REFERS TO PROCEDURE R-1004, BUT OUR RECORDS SHOW THAT TO BE AN OBSOLETE PROCEDURE REGARDING THE COUNTING OF LIQUID SAMPLES. I HAVE INCLUDED IN THIS FAX A COPY OF A PARTIAL LISTING OF PROCEDURES SHOWING THIS.

WE HAVE BEEN CONDUCTING THE ENVIRONMENTAL SURVEYS SINCE THE EARLY 1980'S. WE CONDUCT A "TYPE III" SURVEY, A DESCRIPTION OF WHICH I HAVE ALSO ENCLOSED.

IF YOU NEED ANYTHING ELSE, PLEASE LET ME KNOW.

Bill

If Fax is incomplete or illegible, please contact us at 301-349-5001

PROCEDURES

Procedure No./ Date	Revision No.	Title
R1001 March 14, 1977	2	Counting Procedures <i>W. Ludlum model 2200 Rev 4 1-1-01</i>
R1002 January 24, 1991	6	Sampling Procedure
R1003 January 31, 1991	2	Procedure for Entrance To and Exit From Contamination Control Areas
R1004 March 7, 1974	<i>Void</i>	Counting Procedure for Standard Liquid Samples VOIDED on August 22, 1983
R1005 March 7, 1974	<i>Void</i>	Procedure for Routine Water Sampling VOIDED on August 22, 1983
R1006 <i>12-26-00</i> March 6, 1991	<i>46</i>	Disposal of Sewage
R1007 <i>12-26-00</i> April 25, 1991	<i>56</i>	<i>Calibration of Reg Sim Nuc + area mon</i> Radiation Detection Instruments, Calibration Procedure
R1010 May 4, 1982	0	Procedure for Reporting of Radiation and Contamination Levels
R1011 January 31, 1991	1	Procedure for the Limits for Decontamination and Release of People and Personal Effects from the Limited Access Area
R1012 April 1, 1993	4	Procedure for Daily Operational Checkout and Routine Maintenance of the Helgeson Mini HRCM Booth Monitor
NR 1013 April 28, 1993 <i>July 26</i>	<i>12</i>	Procedure for Changing Spent Pool Resin
NR 1014 January 22, 1991	0	Dewatering, Sealing, and Shipping 60 Gallon Polyethylene "HICs" Provided by Chem Nuclear Systems, Inc.
NR 1015 January 22, 1991	0	Procedure for Use of the Drum Storage Vault
<i>R 1016</i> <i>12-7-95</i>	0	<i>Lo + tag of pump + machinery at NPI</i>
<i>R 1017</i> <i>12-21-95</i>	0	<i>Comp Spec entry</i>

10/3/84

PAGE 84

NPI ENVIRONMENTAL SURVEY-TYPE III

ORIGINAL

PURPOSE

Random Monitoring of Neutron Products'
Environmental Release Systems

START DATE

March 15, 1981

MEDIA SAMPLED

5 cm. from the ground
Space close to surface

METHOD USED

Moderate pace walking survey with Ludlum Model
144 survey meter with 1" NaI crystal and audible
indicator and detector close to surface

FREQUENCY

Monthly

NUMBER OF SITES MONITORED
PER SURVEYNot less than 1 acre per month, not less than
1 site per monthTECHNICAL BASIS FOR SITE
SELECTIONSpecific concern, downstream sampling or in
pursuit of a trail

SENSITIVITY OF MEASUREMENT

Will not miss 10 μ Ci on the surface

ALERT LEVEL/ACTION

Excursion to double background
Quantify, locate, mark and map. Notify Radiation
Safety Officer of any source exceeding 10 μ Ci
who will initiate a Type VI surveyLEVEL FOR ACTION TO REDUCE
SOURCEWith hole cutter and with consent of property
owner, remove any activity in excess of 1 μ Ci,
bag, mark and save

LEVEL TO CEASE AND ABATE

Any release in excess of regulatory limits known
or reasonably believed to be from plant will
cause shutdown of any probable source

NOTIFICATION LEVEL

Finding of activity in excess of 10 μ Ci

METHOD OF NOTIFICATION

Telephone followed by letter

NEUTRON PRODUCTS inc

22301 Mt. Ephraim Road, P. O. Box 68
Dickerson, Maryland 20842 USA
301-349-5001 FAX: 301-349-2433
e-mail: neutronprod@erols.com

7 March 2007

Via FAX (410) 537-3198

Mr. Alan Jacobson
Radiological Health Program
Maryland Department of the Environment
1800 Washington Blvd.
Baltimore, MD 21230

Dear Alan,

I am writing in response to our telephone conversation earlier today.

I have prepared a table of the dates and attendees of our Radiation Safety Committee meetings for calendar year 2006 to summarize the records which you and Danny Adams inspected during your last visit.

Date of Meeting	Attendees
February 23, 2006	Cathy Bupp, Ed DeRosa, Bill Ransohoff, Dale Repp, Marvin Turkanis, Jeff Williams, Danny Wineholt
March 31, 2006	Bob Alexander, Ed DeRosa, Bill Ransohoff, Matt Repp, Jeff Williams, Danny Wineholt
May 11, 2006	Cathy Bupp, Ed DeRosa, Bill Ransohoff, Dale Repp, Marvin Turkanis, Jeff Williams, Danny Wineholt
June 30, 2006	Bob Alexander, Bill Ransohoff, Matt Repp, Jeff Williams
September 21, 2006	Cathy Bupp, Ed DeRosa, Bill Ransohoff, Marvin Turkanis, Jeff Williams
September 29, 2006	Bob Alexander, Bill Ransohoff, Marvin Turkanis, Jeff Williams, Danny Wineholt
November 16, 2006	Cathy Bupp, Ed DeRosa, Bill Ransohoff, Marvin Turkanis, Danny Wineholt, Jeff Williams

ORIGINAL

Mr. Alan Jacobson
7 March 2007
Page 2

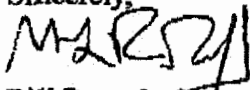
December 29, 2006

Bob Alexander, Ed DeRosa, Dale Repp, Jeff Williams,
Danny Wineholt

As we discussed, we do not use the services of a Waste Management Consultant. However, Jeff Williams serves as our Waste Management Coordinator. In that capacity, he discusses various options with waste processors in an effort to optimize our waste disposal operations, given our limited resources.

If you require additional information on this matter, please let me know.

Sincerely,



Bill Ransohoff
Neutron Products inc

NEUTRON PRODUCTS inc

STATE OF MARYLAND
DHMH-Laboratories Administration
Division of Environmental Chemistry
RADIATION LABORATORY
201 W. Preston Street, Baltimore, Maryland 21201
J. Mehsen Joseph, Ph.D., Director

LABORATORY ANALYSIS REQUEST

Date: 01/16/07 Collector: A Jacobson

Phone: _____ Fax: _____ Number of samples: 5

Sample Type: wipes (3) Collection date & time 01/11/07

Sample Source: N. P. F. INC Mount CO

Comments: _____

List of Radionuclides Requested:

Radionuclide	Field ID	Lab Number	Result
<u>^{60}Co</u>		<u>1278-1282</u>	

Date Received: 01/16/07 Date Reported: 01/19/07

Analyst: C. Wally Byrd Lab Supervisor: S. Wise

ORIGINAL

MARYLAND STATE DEPARTMENT OF HEALTH AND MENTAL HYGIENE
RADIATION LABORATORY REPORT
(410) 767-5537

SAMPLE SOURCE: NPI Inc., Montgomery County

COLLECTOR: A. Jacobson

SAMPLE TYPE: Wipe

COLLECTION DATE: 01/11/07

RECEIPT DATE: 01/16/07

REPORT DATE: 01/19/07

ANALYSES BY: C. Watty-Boyd

B. Wase

Activity (pCi/wipe)

<u>Lab. No.</u>	<u>Wipe#</u>	<u>Co-60</u>
1278 Floor - main pool	1	$5.4276 \times 10^2 \pm 2.1757 \times 10$
1279 Floor by rear of hotel	2	$1.6202 \times 10^4 \pm 4.1294 \times 10^2$
1280 Sorting table	3	$1.5616 \times 10^2 \pm 9.9974$
1281 Dust In Fan Room	4	$5.9752 \times 10^3 \pm 1.5585 \times 10^2$
1282 HP Table	5	$1.2641 \times 10^2 \pm 8.8796$

7/12/00

- 1) 55 GALLON DRUM OF DECON
 2) 55 GALLON DRUM OF HOT
 Both in NORTH waste Room

SHIPPED TO: DOWNEY
 DATE: 6/06

7/24/00

BOX # 81
 SHIPPED TO: ATG
 DATE: 6-01

20 mR/hr CONTACT
 7 mR/hr 1 FT

7/31/00

BOX # 82

SHIPPED TO: ATG
 DATE: 6-01

350 mR/hr CONTACT 50 mR/hr 1 FT

BOX # 83

SHIPPED TO: ATG
DATE: 6-01

10 mR/hr CONTACT 3 mR/hr 1 FT

10/10/00

HEPA 5.1/Sec 4 co. ft

SHIPPED TO: DOWNEY
 DATE: 6-06

FALL, 2000 AND BEYOND:

DAW generated w/in LAA being compacted. Relevant
 information recorded on compacta drum data sheets.

1/24/01

DI RESIN CHANGE. ~ 1 FT³ RESIN. NO APPRECIABLE
 DOSE RATE MAIN LAA UNTIL DEWATERING COMPLETE

SHIPPED TO: ATG
 DATE: 6-01

3-28-01

10 FILTERS MAIN POOL
 AND NORTH CANAL POOL
 200 mR/hr CONTACT FROM NORTH CANAL FILTER

SHIPPED TO: ATG
 DATE: 6-01

3/28/01

1 waste tube 1" x 24" approx 1 ci to south can
 (ARG TARGET TUBES & END CAPS)

ORIGINAL

4-10-01

BOX #

SHIPPED TO: ATG

DATE: 4/6/01

16 cu. FT. DAW 67 LBS. SC

200 mr/hr CONTACT

30 mr/hr @ 1 FT.

BOX #

SHIPPED TO: ATG

DATE: 4/5/01

16 cu. FT. DAW 75 LBS. SC

8 mr/hr CONTACT

2 mr/hr @ 1 FT.

BOX #

SHIPPED TO: ATG

DATE: 4/6/01

16 cu. FT. DAW 86 LBS. SC

120 mr/hr CONTACT

4 mr/hr @ 1 FT.

BOX #

SHIPPED TO: ATG

DATE: 4/7/01

16 cu. FT. DAW 48 LBS. ~~SC~~

300 mr/hr CONTACT

110 mr/hr @ 1 FT.

4-20-01

BOX #

SHIPPED TO: DORATER

DATE: 4/16/01

16 cu. FT. DAW 134 LBS. ~~SC~~ $\frac{1}{2}$ FULL WITH ceiling TILES SWR 7-16-01

15 mr/hr CONTACT

4-25-01

BOX #

SHIPPED TO: ATG

DATE: 4/6/01

16 cu. FT. DAW 67 LBS. SC

2 mr/hr CONTACT

4-28-01

BOX #

SHIPPED TO: DORATER

DATE: 4/26/01

16 cu. FT. DAW 80 LBS. ~~SC~~

900 mr/hr CONTACT (SMALL SPOT)

30 mr/hr @ 1 FOOT SWR 7-16-01

5-9-01

BOX #

SHIPPED TO: DORATER

DATE: 4/10/01

16 cu. FT. DAW 114 LBS. ~~SC~~

FROM INNERPACK # 3A DATED JAN. 1997

400 mr/hr CONTACT

125 mr/hr @ 1 FOOT SWR 7-16-01

6

5-9-01 BOX #92 DAW 16 cu FT 56 lbs.
 FROM INNERPACK # 3A DATED JAN 1997
 SHIPPED TO MITG 6-21-01
 DATE: 35 m/hr CONTACT
 8 m/hr @ 1 FOOT BC

5-9-01 BOX #93 16 cu. Foot DAW 42 lbs.
 FROM INNERPACK # 9 DATED JAN 1997
 SHIPPED TO MITG 6-21-01
 DATE: 150 m/hr CONTACT
 50 m/hr @ 1 FOOT BC

5-9-01 BOX #94 16 cu. FT. DAW 78 LBS.
 FROM INNERPACK #9 DATED JAN. 1997
 SHIPPED TO MITG 6-21-01
 DATE: 500 m/hr CONTACT SWR 7-16-01
 75 m/hr @ 1 FOOT
 Repacked for incineration 9/27/06

5-10-01 BOX #95 16 cu. FT DAW 55 LBS.
 FROM INNERPACK #9 DATED JAN. 1997
 SHIPPED TO MITG 6-21-01
 DATE: 400 m/hr CONTACT SWR 7-16-01
 95 m/hr @ 1 FOOT
 Repacked for incineration 9/26/06

5-10-01 BOX #96 16 cu. FT. DAW 33 LBS
 FROM INNERPACK # 6 DATED JAN. 1997
 SHIPPED TO MITG 6-21-01
 DATE: 500 m/hr CONTACT SWR 7-16-01
 95 m/hr @ 1 FOOT
 Repacked for incineration 9/27/06

5-10-01 BOX #97 16 cu. FT DAW 48 LBS.
 FROM INNERPACK #6 DATED JAN 1997
 SHIPPED TO MITG 6-21-01
 DATE: 90 m/hr CONTACT
 20 m/hr @ 1 FOOT BC

ORIGINAL
7

5/2/01 - (6) 1 1/2 inch waste tubes approx 1 in each
from DTL SOURCES OUT OF TUBE LEFTOVERS
Put ~~ATG~~ main Pool

5-10-01 ~~SHIPPED TO: ATG~~ BOX # 98 16 cu FT DAW 67 LBS

DATE: ~~6-6-01~~ FROM INNERPACK # 6

DATE: DATED JAN. 1997

375 CONTACT

85 @ 1 FT BC

5-10-01 ~~SHIPPED TO: ATG~~ BOX # 99 16 cu FT DAW 92 lbs

DATE: ~~6-6-01~~ FROM INNERPACK # 15

DATE: DATED JAN. 1997

170 MR/HR CONTACT

40 MR/HR @ 1 FOOT BC

5-11-01 ~~SHIPPED TO: ATG~~ BOX # 100 16 cu FT DAW 60 LBS

DATE: ~~6-6-01~~ FROM INNERPACK # 15

DATE: DATED JAN. 1997

450 MR/HR CONTACT

65 MR/HR @ 1 FOOT ~~BE~~

6-6-01 ~~SHIPPED TO: ATG~~ BOX # ~~SWR 05~~ 16 cu FT DAW 65 LBS

DATE: ~~6-6-01~~ FROM SOUTH WASTE ROOM

700 MR/HR CONTACT

125 MR/HR @ 1 FOOT

SWR 7-16-01

6-6-01 ~~SHIPPED TO: ATG~~ BOX # ~~SWR 05~~ 16 cu FT DAW 62 LBS

DATE: ~~6-6-01~~ FROM SOUTH WASTE ROOM

4 R/HR CONTACT

400 MR/HR @ 1 FOOT

NEW BOX #

101

8

6-6-01

#

SR 1004

16 cu FT

DAW

39 LBS

FROM SOUTH WASTE ROOM

150 mr/hr CONTACT

30 mr/hr @ 1 FOOT

SHIPPED TO: KTG

DATE: 6-01-01

6-6-01

#

6-98-1

16 cu FT

DAW

97 LBS

FROM SOUTH WASTE ROOM

10 mr/hr CONTACT

10 mr/hr @ 1 FOOT

SHIPPED TO: KTG

DATE: 6-01-01

6-6-01

#

101

16 cu FT

DAW

63 LBS

FROM SOUTH WASTE ROOM

15 mr/hr CONTACT

15 mr/hr @ 1 FOOT

SHIPPED TO: KTG

DATE: 6-01-01

6-6-01

#

102

16 cu FT

DAW

104 LBS

FROM SOUTH WASTE ROOM

200 mr/hr CONTACT

15 mr/hr @ 1 FOOT

SHIPPED TO: KTG

DATE: 6-01-01

6-6-01

#

98

16 cu FT

DAW

59 LBS

FROM SOUTH WASTE ROOM

5 mr/hr CONTACT

3 mr/hr @ 1 FOOT

SHIPPED TO: KTG

DATE: 6-01-01

6-6-01

#

WR03

16 cu FT

DAW

58 LBS

FROM SOUTH WASTE ROOM

200 mr/hr CONTACT

35 mr/hr @ 1 FOOT

SHIPPED TO: KTG

DATE: 6-01-01

ORIGINAL
9

6-6-01 #062298-2 16 cu FT DAW 78 lbs
FROM SOUTH WASTE ROOM
20 m³/hr CONTACT
10 m³/hr @ 1 FOOT

6-6-01 BOX #062297 16 cu FT DAW 45 LBS
FROM SOUTH WASTE ROOM
10 m³/hr CONTACT
3 m³/hr @ 1 FOOT

6-6-01 BOX #062292 16 cu FT DAW 39 LBS
FROM SOUTH WASTE ROOM
2 m³/hr CONTACT
350 m³/hr @ 1 FOOT

6-6-01 BOX #062299 16 cu FT DAW 63 LBS
FROM SOUTH WASTE ROOM
200 m³/hr CONTACT
80 m³/hr @ 1 FOOT

6-6-01 BOX #062294 16 cu FT DAW 62 LBS
55 m³/hr CONTACT
18 m³/hr @ 1 FOOT

6-6-01 BOX #062293 16 cu FT DAW 56 LBS
15 m³/hr CONTACT
11 m³/hr @ 1 FT

6-6-01 BOX #070998-1 16 cu FT DAW 65 LBS
30 m³/hr CONTACT
13 m³/hr @ 1 FOOT

10

6-6-01

SHIPPED TO: ~~ATG~~
~~Box # 105~~
~~DATE: 6-01~~

16 cu FT

DAW

70 LBS

65 mi/hr CONTACT

20 mi/hr @ 1 FOOT

6-6-01

SHIPPED TO: ~~ATG~~
~~Box # 106~~
~~DATE: 6-01~~

16 cu FT

DAW

55 LBS

3 mi/hr CONTACT

1 mi/hr @ 1 FOOT

6-6-01

SHIPPED TO: ~~ATG~~
~~Box # 107~~
~~DATE: 6-01~~

16 cu FT

DAW

47 LBS

9 mi/hr CONTACT

3 mi/hr @ 1 FOOT

6-6-01

SHIPPED TO: ~~ATG~~
~~Box # 108~~
~~DATE: 6-01~~

16 cu FT

DAW

62 LBS

5 mi/hr CONTACT

2 mi/hr @ 1 FOOT

6-6-01

SHIPPED TO: ~~ATG~~
~~Box # 109~~
~~DATE: 6-01~~

16 cu FT

DAW

22 LBS

250 mi/hr CONTACT

40 mi/hr @ 1 FOOT

6-6-01

SHIPPED TO: ~~ATG~~
~~Box # 110~~
~~DATE: 6-01~~

16 cu FT

DAW

61 LBS

2000 mi/hr CONTACT

250 mi/hr @ 1 FOOT

SWR 6-01

6-6-01

SHIPPED TO: ~~ATG~~
~~Box # 112~~
~~DATE: 6-01~~

16 cu FT

DAW

39 LBS

350 mi/hr CONTACT

120 mi/hr @ 1 FOOT

ORIGINAL
11

6-12-01 BGTG # 111 12 cu FT DAW - LEAVES - 6 FILTERS FROM
DI-DI + MAIN POOL 6-8-01 CHANGE

SHIPPED TO: KTG
DATE: 9/4/01

9.5 m/hr CONTACT
30 m/hr @ 1 FT

6-8-01 BGTG # 112 12 cu FT DAW 58 LBS

SHIPPED TO: KTG
DATE: 6/21/01

110 m/hr CONTACT
30 m/hr @ 1 FT

7-16-01 # FD-001 8 cu FT DAW FILTERS (POOL) 88 LBS

SHIPPED TO: DUKATEK
DATE: 06/04

50 m/hr CONTACT (BOTTOM)
4 m/hr @ 1 FOOT

(SWR)

7-16-01 # FD-002 8 cu FT DAW From behind cell 85 LBS

SHIPPED TO: STRATON
DATE: 06/04

450 m/hr CONTACT (TOP)
100 m/hr @ 1 FOOT

(SWR)

8-10-01 3 cu FT. OF RESIN FROM MAIN POOL CONTAINING
1 CURIE OF CO⁶⁰ IN WHITE SHEILD # 14 (WWR)

9-7-01 FD003 8 cu FT DAW, 84 LBS.

SHIPPED TO: DUKATEK
DATE: 06/04

140 m/hr CONTACT
11 m/hr @ 1 FOOT

(SWR)

9-7-01 FD004 8 cu FT DAW 65 LBS

SHIPPED TO: DUKATEK
DATE: 06/04

13 m/hr CONTACT
4 m/hr @ 1 FOOT

10-10-01 FD005 8 cu FT DAW 72 LBS

SHIPPED TO: DUKATEK
DATE: 01/06

100 m/hr CONTACT
10 m/hr @ 1 FOOT

(SWR)

7-30-01

FD006

8 cu ft

DAW

53 Lbs.

400 MR/HR CONTACT

100 MR/HR @ 1 FOOT

From behind cell

(SC)

SHIPPED TO: 10/06

BE

11-30-01

FD007

8 cu ft DAW

70 Lbs.

7 MR/HR CONTACT

2 MR/HR @ 1 FOOT

DATE: 10/06

(SC)

SHIPPED TO: 10/06

BE

11-30-01

FD008

8 cu ft DAW

60 Lbs.

5 MR/HR CONTACT

1 MR/HR @ 1 FOOT

DATE: 10/06

(SC)

SHIPPED TO: 10/06

BE

RADWASTE LOG UPDATE

AS OF 5-22-03 The Shielded CONTAINER

HAS 125 CU. FT. OF DAW

2 CU. FT. OF DIRT

PLUS 3 FIBER DRUMS FROM ABOVE

PLUS 1 FIBER DRUM DAW ADDED 4/2002

THE 125 CU. FT. COMPRISES:

1 BAG ADDED 4/2002

2 INNERPACKS ADDED 8/2002

1 BAG ADDED 3/2003

1 BAG ADDED 5/22/2003

SHIPPED TO: 10/06

DATE: 10/06

3 BAGS ONLY

6/5/2002

6/13/2003

8/2003

DII RESIN CHANGE. OLD RESIN PLACED LAA, LOW DOSE RATE.

NORTH CANAL RESIN CHANGE. ELB RESIN PLACED IN NORTH WASTE ROOM.

DI RESIN CHANGE. OLD RESIN IN LAA. LOW DOSE RATE.

ORIGINAL
13

12-30-03 ~~SHIPPED TO: DAW~~
~~DATE: 12/30/03~~ FDO009

8.5 FT³ DAW
 9 mr/hr CONTACT
 2 mr/hr @ 1 FOOT

60.5 LBS.

SC

12-30-03 FDO10

8.5 FT³ DAW
 4 mr/hr CONTACT
 1 mr/hr @ 1 FOOT

74.5 LBS.

SC

12-30-03 FDO11

7.5 FT³ DAW
 7 mr/hr CONTACT
 1 mr/hr @ 1 FOOT

60 LBS.

SC

4-12-04 ~~SHIPPED TO: DAW~~
~~DATE: 04/12/04~~ FDO12

7.5 FT³ DAW
 13 mr/hr CONTACT
 3 mr/hr @ 1 FOOT

76 LBS.

SC

4-12-04 FDO12

7.5 FT³ DAW
 7 mr/hr CONTACT
 1.5 mr/hr @ 1 FOOT

61 LBS.

SC

4-12-04 FDO13

7.5 FT³ DAW
 1 mr/hr CONTACT
 0.5 mr/hr @ 1 FOOT

103 LBS.

SC

4-12-04 FDO15

7.5 FT³ DAW
 2 mr/hr CONTACT
 1 mr/hr @ 1 FOOT

55 LBS.

SC

4-12-04 MDO16

7.5 FT³ METAL - PVL - DIVT
 2 mr/hr CONTACT
 1 mr/h @ 1 FOOT

SC

14

4-12-04

MD017

7.5 FT³ METAL2 m³/hr CONTACT1 m³/hr @ 1 FOOT

SC

10-1-04

~~4-12-04~~

FD018

7.5 FT³ DAW

58 LBS.

700 m³/hr CONTACT80 m³/hr @ 1 FOOT

SC

Seal NO. 080

Replaced for inner drum

10-1-04

FD019

2.5 FT³ DAW

75 LBS.

60 m³/hr CONTACT5 m³/hr @ 1 FOOT

Seal NO. 1086

SC

10-1-04

FD020

7.5 FT³ DAW

100 LBS.

6 m³/hr CONTACT1 m³/hr @ 1 FOOT

Seal NO. 2000

SC

10-1-04

FD021

2.5 FT³ DAW

103 LBS.

2 m³/hr CONTACT0.5 m³/hr @ 1 FOOT

Seal NO. 1326

SC

10-4-04

resin From Main Pool + North canal I
 WAS Placed in a STAINLESS STEEL DRUM
 inside drum shield #25. DRUM CONTAINS
 approx. 4 FT³ OF resin

Radiation reading From Drum shield CONTACT = 50 m³/h

1 FT = 170 m³/h

1 meter = 5 m³/h

Shield Placed in North waste room

ORIGINAL
15

4/6/2006

Swept leaves, shoe covers in S. Waste room. ~ 1 cu ft.
Left in bag in trash can in S. W. Room.

Swept leaves, shoes covers in North Waste Room. ~ 1 cu ft.
Removed from N.W. Room and surveyed < 2 mR/hr
on contact. Added to shielded cando.

Added 5 bags of leaves to shielded cando. Approx. 25 cu ft.

Bag A - 38#

B 27#

C 35#

D 45#

E 54#

All < 2 mR/hr on contact

SHIPPED TO: ~~DATE: 6/2/06~~
DATE: 6/2/06

RESIN CHANGE. DRUM IN LAA. LOW DOSE RATE.

SHIPPED TO: ~~DATE: 6/2/06~~
DATE: 6/2/06

PREPARING WASTE FOR SHIPMENT, USED 3 DRUMS
(FD022, FD023 AND FD024) WHICH WAS
GENERATED PRIMARILY IN 2005, BUT WHICH
HAD NOT YET BEEN MOVED TO STORAGE AND
WHICH, THEREFORE, HAD NOT BEEN ADDED TO THIS
WASTE LOG. ALL ACTIVITIES WERE VERY LOW.

AVERAGE WEIGHT OF 3 DRUMS APPROXIMATELY 70#
AND AVERAGE DOSE @ 1 FT. APPROXIMATELY

1 mR/hr

8-24-06

FD025

7.5 FT3 DAW -57 LBS

LAA-warehouse

6 mR/hr @ contact

1 mR/hr @ 1 foot

10/15/06
10/15/06

8-24-06

FD026

7.5 FT3 DAW -57 LBS

LAA-warehouse

1 mR/hr @ contact

16

8-24-06 (Or) FD 027 7.5 FT³ DAW 40 LBS LAA-warehouse
1 MP/HR @ contact

8-24-06 (Or) FD 028 7.5 FT³ DAW 65 LBS LAA-warehouse
1 MP/HR @ contact

8-24-06 (Or) FD 029 7.5 FT³ DAW 62 LBS LAA-warehouse
1 MP/HR @ contact

12-21-06 (Or) ID 030 7.5 FT³ DAW 67 LBS LAA-warehouse
1 MP/HR @ contact
1 MP/HR @ 1 foot

12-26-06 (Or) plant 12 buckets of pool FILTERS IN SOUTH WASTE ROOM
highest reading was 60 MP/HR at contact
see page #24 of MAINTENANCE log for details

1-31-07 (Or) FD 031 7.5 FT³ DAW 69 LBS LAA-warehouse
1 MP/HR @ contact

ORIGINAL

16

8-24-06 (OW) FD 027 7.5 FT³ DAW 40 LBS LAA-warehouse
1 mR/HR @ contact

8-24-06 (OW) FD 028 7.5 FT³ DAW 65 LBS LAA-warehouse
1 mR/HR @ contact

8-24-06 (OW) FD 029 7.5 FT³ DAW 62 LBS LAA-warehouse
1 mR/HR @ contact

12-21-06 (OW) ID 030 7.5 FT³ DAW 67 LBS LAA-warehouse
16 mR/HR @ contact
1 mR/HR @ 1 foot

12-26-06 (OW) placed 12 buckets of POOL FILTERS IN SOUTH WASTE ROOM
highest reading was 6 mR/HR at contact
see page #24 of MAINTENANCE LOG for details

1-31-07 (OW) FD 031 7.5 FT³ DAW 69 LBS LAA-warehouse
1 mR/HR @ contact

AS OF 6-1-99 THE SHIELDED WASTE
CONTAINER HAD THE FOLLOWING
6- 7.5 CU.FT. DRUMS
33- 16 CU.FT. BOXES

6-9-99 BOX #3401 DAW 16 CU.FT 2 MR/HR @ 1 FT SC
~~7-12-99~~
~~6-12-99~~ DAW CONTAINING COURTYARD DEBRIS APPROX. 5 CU.FT
DATE: 6-01 2.5 MR/HR @ 1 FT SC 720

6-23-99 DRUM CONTAINING METAL APPROX. 7.5 CU.FT 720

7-13-99 SHIPPED TO: ATG 100 MR/HR @ 1 FT SC 720
DATE: 6-01 33 CONTAINING DAW 16 CU.FT 720

7-13-99 SHIPPED TO: ATG 100 MR/HR @ 1 FT SC 720
DATE: 6-01 16 CU.FT OF DAW

7-13-99 SHIPPED TO: ATG 8 MR/HR @ 1 FT SC 720
DATE: 6-01 7.5 CU.FT DRUM OF DAW
300 MR/HR @ 1 FT. SWR

9-9-99 SHIPPED TO: ATG 16 CU.FT BOX (5 MR/HR at 1 FT) DW
DATE: 6-01 23 MR/HR hot SPOT 60 lbs SC

9-9-99 SHIPPED TO: ATG 16 CU.FT BOX DW
DATE: 6-01 3 MR/HR CONTACT 81 lbs SC

10-27-99 SHIPPED TO: ATG 16 CU.FT BOX 70 lbs DW
DATE: 6-01 30 MR/HR at 1 FT.

10-27-99 SHIPPED TO: ATG 16 CU.FT BOX 81 lbs DW
DATE: 6-01 225 MR/HR CONTACT SC
1 MR/HR CONTACT

10-27-99 SHIPPED TO: ATG 16 CU.FT BOX 64 lbs DW
DATE: 6-01 3 MR/HR at 1 FT SC
80 MR/HR at CONTACT
7 MR/HR at 1 FT SC

2

ORIGINAL

7-17-99

BOX # 69

16 cu FT

SHIPPED TO: KTGDATE: 6-01-13 mi/hr CONTACT

2 mi/hr @ 1 FT

SC 204

11-30-99

RESIN TO BE REUSED ←
ON WBSERVANT POOL CLEAN-UPS

FILTERS ONLY

SHIPPED TO: 6-01

9 FILTERS FROM POOL CLEAN-UP

DATE: 6-01 mi/hr @ 1 FT

1/2 cu. FT. OF RESIN

140 mi/hr @ 1 FT

RESIN + FILTERS PUT IN HOT TANK ROOM

1-3-2000

BOX # 70

SHIPPED TO: KTGDATE: 6-01

cu. FT.

DRAW

170 mi/hr CONTACT

40 mi/hr @ 1 FOOT

BOX #

SHIPPED TO: KTGDATE: 6-01

cu. FT.

DRAW

35 mi/hr CONTACT

6 mi/hr @ 1 FOOT

2-8-2000

6- FILTERS FROM MAIN POOL

2- FILTERS FROM DI

2- FILTERS FROM DI

1- FILTER FROM DI TRANSFER POOL

FILTERS PUT IN FILTER DRUM IN NORTH WASTE ROOM

30 mi/hr @ 1 FOOT

1-2000

2 twelve in x 1 1/2 in tubes in pool

Teletherapy 500 m2/h @ 3 ft H2O

Argentine Cholesterol 200 m2/h 1 ft dry

ORIGINAL [7590-01-P]

NUCLEAR REGULATORY COMMISSION**[Docket Nos: (Redacted), License Nos: (Redacted),****EA-XX-XXXX (Redacted)]**

In the Matter of all Licensees Authorized to Manufacture or Initially Transfer Items Containing Radioactive Material for Sale or Distribution and Possess Certain Radioactive Material of Concern and All Other Persons Who Obtain Safeguards Information Described Herein; Order Imposing Additional Security Measures (Effective Immediately)

I

The Licensees identified in Attachment 1⁽¹⁾ to this Order hold licenses issued in accordance with the Atomic Energy Act of 1954 by the U.S. Nuclear Regulatory Commission (NRC or Commission) or an Agreement State authorizing them to manufacture or initially transfer items containing radioactive material for sale or distribution. Commission regulations at 10 CFR § 20.1801 or equivalent Agreement State regulations require Licensees to secure, from unauthorized removal or access, licensed materials that are stored in controlled or unrestricted areas. Commission regulations at 10 CFR § 20.1802 or equivalent Agreement States regulations require Licensees to control and maintain constant surveillance of licensed material that is in a controlled or unrestricted area and that is not in storage.

II

On September 11, 2001, terrorists simultaneously attacked targets in New York, N.Y., and Washington, D.C., utilizing large commercial aircraft as weapons. In response to the attacks and intelligence information subsequently obtained, the Commission issued a number of Safeguards and Threat Advisories to its Licensees in order to strengthen Licensees' capabilities and readiness to respond to a potential attack on a nuclear facility. The Commission has also communicated with other Federal, State and local government agencies and industry representatives to discuss and evaluate the current threat environment in order to assess the adequacy of security measures at licensed facilities. In addition, the Commission has been conducting a review of its safeguards and security programs and requirements.

As a result of its consideration of current safeguards and license requirements, as well as a review of information provided by the intelligence community, the Commission has determined that certain additional security measures are required to be implemented by Licensees as prudent measures to address the current threat environment. Therefore, the Commission is imposing the requirements set forth in Attachment 2 on certain manufacturing and distribution licensees identified in Attachment 1 of this Order⁽²⁾ who currently possess, or have near term plans to possess, high-risk radioactive material of concern. These requirements, which supplement existing regulatory requirements, will provide the Commission with reasonable assurance that the public health and safety and common defense and security continue to be adequately protected in the current threat environment. These requirements will remain in effect until the Commission determines otherwise.

The Commission recognizes that Licensees may have already initiated many measures set forth in Attachment 2 to this Order in response to previously issued advisories or on their own. It is also

recognized that some measures may not be possible or necessary at some sites, or may need to be tailored to accommodate the Licensees' specific circumstances to achieve the intended objectives and avoid any unforeseen effect on the safe use and storage of the sealed sources. Although the additional security measures implemented by the Licensees in response to the Safeguards and Threat Advisories have been adequate to provide reasonable assurance of adequate protection of public health and safety, the Commission concludes that the security measures must be embodied in an Order consistent with the established regulatory framework. The Commission has determined that the security measures contained in Attachment 2 of this Order contain safeguards information and will not be released to the public as per "ORDER IMPOSING REQUIREMENTS FOR THE PROTECTION OF CERTAIN SAFEGUARDS INFORMATION (EFFECTIVE IMMEDIATELY)," issued November 23, 2003, regarding the protection of safeguards information."

To provide assurance that the Licensees are implementing prudent measures to achieve a consistent level of protection to address the current threat environment, all Licensees who hold licenses issued by the U.S. Nuclear Regulatory Commission or an Agreement State authorizing possession of high-risk radioactive material of concern shall implement the requirements identified in Attachment 2 to this Order. In addition, pursuant to 10 CFR § 2.202, I find that in light of the common defense and security matters identified above, which warrant the issuance of this Order, the public health, safety and interest require that this Order be effective immediately.

III

Accordingly, pursuant to Sections 81, 161b, 161i, 161o, 182 and 186 of the Atomic Energy Act of 1954, as amended, and the Commission's regulations in 10 CFR § 2.202, 10 CFR Part 30, and 10 CFR Part 32, IT IS HEREBY ORDERED, **EFFECTIVE IMMEDIATELY**, THAT ALL LICENSEES IDENTIFIED IN ATTACHMENT 1 TO THIS ORDER SHALL COMPLY WITH THE REQUIREMENTS OF THIS ORDER AS FOLLOWS:

- A. The Licensee shall, notwithstanding the provisions of any Commission or Agreement State regulation or license to the contrary, comply with the requirements described in Attachment 2 to this Order. The Licensee shall immediately start implementation of the requirements in Attachment 2 to the Order and shall complete implementation by July 12, 2004, or the first day that radionuclides of concern at or above threshold limits (i.e., high-risk radioactive material), also identified in Attachment 2, are possessed, whichever is later.
- B.
 - 1. The Licensee shall, within **twenty-five (25) days** of the date of this Order, notify the Commission, (1) if it is unable to comply with any of the requirements described in Attachment 2, (2) if compliance with any of the requirements is unnecessary in its specific circumstances, or (3) if implementation of any of the requirements would cause the Licensee to be in violation of the provisions of any Commission or Agreement State regulation or its license. The notification shall provide the Licensee's justification for seeking relief from or variation of any specific requirement.
 - 2. If the Licensee considers that implementation of any of the requirements described in Attachment 2 to this Order would adversely impact safe operation of the facility, the Licensee must notify the Commission, within **twenty-five (25) days** of this Order, of the adverse safety impact, the basis for its determination that the requirement has an adverse safety impact, and either a proposal for achieving the same objectives specified in the Attachment 2 requirement in question, or a schedule for modifying the facility to address the adverse safety condition. If neither approach is appropriate, the Licensee must

supplement its response to Condition B.1 of this Order to identify the condition as a requirement with which it cannot comply, with attendant justifications as required in Condition B.1.

ORIGINAL

- C. 1. The Licensee shall, **within twenty-five (25) days** of the date of this Order, submit to the Commission a schedule for completion of each requirement described in Attachment 2.
- 2. The Licensee shall report to the Commission when they have achieved full compliance with the requirements described in Attachment 2.
- D. Notwithstanding any provisions of the Commission's or an Agreement State's regulations to the contrary, all measures implemented or actions taken in response to this order shall be maintained until the Commission determines otherwise.

Licensee responses to Conditions B.1, B.2, C.1, and C.2 above shall be submitted to the Director, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555. In addition, Licensee submittals that contain specific physical protection or security information considered to be safeguards information shall be put in a separate enclosure or attachment and, marked as "SAFEGUARDS INFORMATION - MODIFIED HANDLING" and mailed (no electronic transmittals i.e., no e-mail or FAX) to the NRC.

The Director, Office of Nuclear Material Safety and Safeguards, may, in writing, relax or rescind any of the above conditions upon demonstration by the Licensee of good cause.

IV

In accordance with 10 CFR § 2.202, the Licensee must, and any other person adversely affected by this Order may, submit an answer to this Order, and may request a hearing on this Order, within twenty-five (25) days of the date of this Order. Where good cause is shown, consideration will be given to extending the time to request a hearing. A request for extension of time in which to submit an answer or request a hearing must be made in writing to the Director, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555, and include a statement of good cause for the extension. The answer may consent to this Order. Unless the answer consents to this Order, the answer shall, in writing and under oath or affirmation, specifically set forth the matters of fact and law on which the Licensee or other person adversely affected relies and the reasons as to why the Order should not have been issued. Any answer or request for a hearing shall be submitted to the Secretary, Office of the Secretary of the Commission, U.S. Nuclear Regulatory Commission, ATTN: Rulemakings and Adjudications Staff, Washington, DC 20555. Copies also shall be sent to the Director, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555, to the Assistant General Counsel for Materials Litigation and Enforcement at the same address, and to the Licensee if the answer or hearing request is by a person other than the Licensee. Because of possible disruptions in delivery of mail to United States Government offices, it is requested that answers and requests for hearing be transmitted to the Secretary of the Commission either by means of facsimile transmission to 301-415-1101 or by e-mail to hearing.docket@nrc.gov and also to the Office of the General Counsel either by means of facsimile transmission to 301-415-3725 or by e-mail to OGCMailCenter@nrc.gov. If a person other than the Licensee requests a hearing, that person shall set forth with particularity the manner in which his interest is adversely affected by this Order and shall address the criteria set forth in 10 CFR § 2.714(d).

If a hearing is requested by the Licensee or a person whose interest is adversely affected, the

Commission will issue an Order designating the time and place of any hearing. If a hearing is held, the issue to be considered at such hearing shall be whether this Order should be sustained.

Pursuant to 10 CFR § 2.202(c)(2)(i), the Licensee may, in addition to demanding a hearing, at the time the answer is filed or sooner, move the presiding officer to set aside the immediate effectiveness of the Order on the ground that the Order, including the need for immediate effectiveness, is not based on adequate evidence but on mere suspicion, unfounded allegations, or error.

In the absence of any request for hearing, or written approval of an extension of time in which to request a hearing, the provisions specified in Section III above shall be final twenty-five (25) days from the date of this Order without further order or proceedings. If an extension of time for requesting a hearing has been approved, the provisions specified in Section III shall be final when the extension expires if a hearing request has not been received. AN ANSWER OR A REQUEST FOR HEARING SHALL NOT STAY THE IMMEDIATE EFFECTIVENESS OF THIS ORDER.

Dated this 12th day of January 2004

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Martin J. Virgilio, Director
Office of Nuclear Material Safety
and Safeguards

Attachment 1 - Redacted
Attachment 2 - Redacted

-
1. Attachment 1 contains OFFICIAL USE ONLY sensitive information and will not be released to the public.
 2. Attachment 1 contains OFFICIAL USE ONLY sensitive information and Attachment 2 contains SAFEGUARDS INFORMATION and will not be released to the public.

ORIGINAL

From: Jerry Adams
To: Besche, Bonnie; Kurman, Mike
Date: 8/3/2009 10:58 AM
Subject: Mitra Z. Fard, D.D.S., P.C

Mitra Z. Fard, D.D.S., P.C.
50 West Edmonston Road, Suite 605
Rockville, Maryland 20852

RE: Violation of Regulations for Control of Ionizing Radiation
ARMA RHP Case No. 09-72, Registration No. 31-2021

Dr. Fard will be requesting an Invoice, but claims to have all of the records we required. Will pay because she doesn't care to continue with this. Jerry

ORIGINAL

From: Jerry Adams
To: Besche, Bonnie; Kurman, Mike
Date: 8/3/2009 11:22 AM
Subject: Joseph Frontera, D.D.S.

Joseph Frontera, D.D.S.
101 West Ridgely Road, Suite 3B
Lutherville, Maryland 21093

RE: Violation of Regulations for Control of Ionizing Radiation
ARMA RHP Case No. 09-384, Registration No. 05-1912

Can't decide if he will pay or not. States that \$750 is more than his practice can afford. His position is that We are taking advantage of small businesses to enrich the state. Has asked that I e-mail him the RX-1 form so that he can have the Machine removed from his inventory. I explained that it had to be rendered fully inoperable by a registered service provider. He stated that he understood. Jerry